GROWTH POTENTIAL AND SURVIVAL CAPABILITY OF SOUTHERN PLAINS DRYLAND FARMS: A SIMULATION ANALYSIS INCORPORATING MULTIPLE-GOAL DECISION MAKING

By

ROY EDWARD HATCH

Bachelor of Science
Texas Technological College
Lubbock, Texas
1961

Master of Science
Texas A&M University
College Station, Texas
1963

Submitted to the Faculty of the Graduate College
of the Oklahoma State University
in partial fulfillment of the requirements
for the Degree of
DOCTOR OF PHILOSOPHY
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Thesis Approved:

Odell L. Walker
Thesis Adviser

John R. Brazzmann

P. L. Claypool

L. Leo Strickland

N. M. Durham
Dean of the Graduate College

PREFACE

Joint research efforts by personnel in the Department of Agricultural Economics, Oklahoma State University, and the Economic Research Service, United States Department of Agriculture are focused on problems of survival, adjustment and growth. This study is a cooperative project associated with Oklahoma Agricultural Experiment Station Project 1497, "An Analysis of the Impact of Financial and Production Strategies on the Growth of Oklahoma Farms and Ranches."

I am greatly indebted to Dr. Vernon R. Eidman and Dr. Odell L. Walker, since both have served as my Graduate Committee Chairman during the course of this study. Dr. Eidman provided advice and encouragement in the formative stages of the study and in the development of the operational model. Dr. Walker provided invaluable assistance in the final phases of this research project. I am certainly indebted to the Economic Research Service, United States Department of Agriculture, for allowing me to continue my graduate work and for making this study possible.

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CHAPTER I

INTRODUCTION

Several measures of size have been used to describe or characterize farm and ranch firms. Physical inputs, physical outputs, financial resources required, gross sales, and net worth are the more commonly used measurements. Regardless of the measurement of size one chooses to use, it is apparent that the size of the agricultural firm in the southern Great Plains has increased substantially during the last three decades. Many observers expect this trend of increasing size to continue. A related observation is that the minimum size of farm firm required for the farm family to maintain a standard of living equivalent to that enjoyed by their nonfarm counterparts has also increased.

Other relevant factors that are expected to exhibit an increasing trend are (1) the adoption of technological developments with the accompanying decrease in net returns per unit of output and (2) a general increase in the standard of living in the farm and nonfarm sectors. If farm and ranch firms are to survive and grow, both established and beginning operators must control an adequate set of resources to provide a satisfactory level of living for their families and to furnish capital funds for the growth of the agricultural firm.

Many relevant questions concerning farm firm growth and related factors must be answered if optimal managerial strategies are to be developed. What are the goals of the farm family? How does the relative

importance of family-oriented goals affect the rate of growth and the growth process? What is the optimum rate of capital accumulation or what capital accumulation rate is required to achieve desired rates of growth? How does consumption (the level of family living) affect the rate of capital accumulation, the growth process, and the rate of growth? What changes in existing enterprise combinations facilitate growth? What additional resources are required for firm growth? What methods of resource acquisition and control should be exercised (lease or purchase)? How can the manager best use existing credit institutions and tax management alternatives to achieve desired firm growth? How does the current size of the business affect the firm's capacity to grow? What is the impact of risk and uncertainty on the growth process? This study is designed to answer some of these questions.

The south central Great Plains is a high-risk farming area and is also relatively homogeneous in terms of the types of farming currently in existence. Farmers in the area are faced by elements of uncertainty as well as continuing pressures to increase their income levels in order to insure firm survival and facilitate firm growth. Research is needed to determine the combinations of financial and production activities and/or strategies that best achieve firm growth. The fulfillment of this need requires analysis of the farm firm over time under conditions of uncertainty. Methods used must portray dynamic forces and describe the path of growth variables through time.

Hypothesis of the Study

The central hypothesis of this study is that the goals of the farm family, consumption, variability of net returns, financial strategies

employed by the firm, and methods of resource acquisition and control significantly affect the growth process and the rate of growth. This study will determine the impact of these factors and related decision-making variables on the survival capability and growth potential of dryland, cash grain-livestock farm firms in the south central Great Plains.

Net worth is used in this study as the major indicator of changes in the financial condition of the firm. The major limitation associated with using net worth is that a change in the value of one asset (such as land) may indicate a change in financial condition when the earning potential of the firm has not changed. However, one must recognize that the earning potential of the firm must increase in order to maximize net worth over time. Even though shortcomings or limitations do exist, net worth is a useful measure of the salvage value of the business and provides a basis for comparison of results with results of previous studies.

Objectives of the Study

The general objective of this study is to determine the effects of selected factors on the survival capability and the growth potential of dryland, cash grain-livestock farm firms in the south central Great Plains study area. Specific factors considered to be of major importance include the goals of farm operators, tenure status, yield variability, consumption by the farm family, land acquisition alternatives, and beginning farm size. Alternative growth paths will be generated using a simulation model. The specific objectives associated with the construction and use of the firm growth simulator are:

1. To construct a model, capable of simulating alternative growth paths, that includes the following characteristics:
   a. Uses multiple goals (or a goal hierarchy) in the decision-making process,
   b. Provides alternative strategies or plans for implementation by the farm operator,
   c. Allows for stochastic yields, and
   d. Relates family consumption to farm receipts;
2. To simulate selected representative farm situations subject to different assumptions with respect to initial tenure, farm size, and farm operator characteristics; and
3. To determine how different starting positions (in terms of tenure, farm size, and age of operator) affect goal hierarchies, net farm income, net worth, and rates of firm survival and growth.

Description of the Study Area

The area selected for this study and designated as the south central Great Plains includes eight counties in the northern high plains of Texas, the three Oklahoma Panhandle counties, eight counties in southwestern Kansas, and two counties in southeastern Colorado. Included counties by state are:

Colorado--Baca and Prowers;

Kansas----Grant, Gray, Haskell, Meade, Morton, Seward, Stanton, and Stevens;

Oklahoma--Beaver, Cimarron, and Texas; and

Texas-----Dallam, Hansford, Hartley, Hutchinson, Lipscomb, Moore,

Ochiltree, and Sherman,

The primary basis for delineating the study area as described above is the location of an underground acquifer that can be used as a source of water for irrigation. This particular acquifer, known as the Central Ogallala Formation, is bounded by the Arkansas River on the north and the South Canadian River on the south.[1] A companion study is concerned with the survival and growth potential of farm firms that utilize irrigation. Thus, the study area is defined such that the two studies can ultimately be combined to analyze regional implications based on the alternative growth paths simulated for dryland and irrigated farm firms.

Table I summarizes selected census data for the period 1950-1969. These data indicate a steady decline in the number of farms and an increase in the average size of farm from 1950 through 1964. Total land in farms and total cropland varied only slightly from 1950 through 1969. From 1964 to 1969, farm numbers increased by 1,454 farms. Of this increase, there are 876 additional farms under 260 acres in size (further investigation shows that a large part of this increase occurs in farms that are 10 to 20 acres in size). The remaining 578 "new" farms are distributed among the other size categories. Although farm numbers increased in all size categories, total land decreased in the 2,000 acres and over size group. One hypothesis that explains this decrease is that some of the larger dryland units that are comprised of irrigable soils are being broken up into smaller, intensive irrigation units.

Age distributions are available in the census since 1959. Age categories that have included an increasing number of farm operators from 1959-69 are (1) under 25 years of age and (2) 55 to 64 years of age. The remaining age groups exhibited a tendency for numbers to

TABLE I

SUMMARY OF SELECTED CHARACTERISTICS OF FARMS AND FARM OPERATORS IN THE SOUTH CENTRAL GREAT PLAINS STUDY AREA FOR 1950, 1954, 1959, 1964 AND 1969, U. S. CENSUS OF AGRICULTURE

Item	Unit	1950	1954	1959	1964	1969
Land in farms	ac.	14,114,721	14,631,717	13,962,694	14,444,943	14,671,780
Number of farms	no.	11,022	10,697	9,383	8,734	10,188
Average size of farm	ac.	1,280.6	1,367.8	1,488.1	1,654.0	1,440.1
Total cropland	ac.	7,571,320	7,804,331	7,639,711	7,644,163	7,949,439
Cropland harvested	ac.	5,589,727	4,484,755	4,517,610	3,335,473	4,172,965
Farm numbers by size:						
1 to 259 acres	no.	1,881	1,721	1,219	1,016	1,892
260 to 499 acres	no.	2,409	2,060	1,649	1,399	1,615
500 to 999 acres	no.	3,193	3,106	2,637	2,348	2,630
1,000 to 1,999 acres	no.	{3,549	{3,813	1,808	2,270	2,334
2,000 acres and over	no.			2,087	1,701	1,717
Total land by farm size:						
1 to 259 acres	ac.	240,854	204,457	153,138	131,186	198,698
260 to 499 acres	ac.	925,643	789,487	632,169	538,684	611,132
500 to 999 acres	ac.	2,363,303	2,321,854	1,968,703	1,753,263	1,969,609
1,000 to 1,999 acres	ac.	{10,584,921	{11,315,919	3,265,619	3,212,534	3,310,306
2,000 acres and over	ac.			7,943,065	8,809,276	8,582,035
Age distribution of farm operators:						
Under 25 years	no.	NA	NA	180	190	277
25 to 34 years	no.	NA	NA	1,284	1,076	1,245
35 to 44 years	no.	NA	NA	2,232	1,995	2,115
45 to 54 years	no.	NA	NA	2,507	2,416	2,669
55 to 64 years	no.	NA	NA	1,792	1,926	2,516
65 years and older	no.	NA	NA	1,138	1,131	1,366
Average age	yrs.	NA	NA	48.0	49.0	49.5
Land irrigated in census year	ac.	132,998	262,961	671,098	1,091,905	1,863,880

decline in 1964 from the 1959 levels and to increase for the 1964-69 period. The average age of farm operators in the 21-county study area is 49.5 years.

Census data for 1969 report 14,671,780 acres of total land in farms and 7,949,439 acres of total cropland in the study area. About 1,864,000 acres was reported as being irrigated in the census year. Based on the reported 10,188 farms, the average farm size for the area is 1,440 acres. Approximately 66 percent of the farms are larger than 500 acres. About 63 percent of the land resources are controlled by part owners and about 20 percent by full tenants. Wheat, sorghums, hay crops, and assorted feed grains are the major cropping alternatives in the area.

Review of Literature

Past research endeavors investigating the phenomena of farm firm growth have employed some type of formal model. These models have ranged from formulations that guaranteed optimization of a specified function (e.g., polyperiod or "dynamic" linear programming models) to formulations without a particular objective function or for which an optimum of some sort was not obtained. Models of the optimizing variety have generally dealt with the maximization of a single goal (e.g., maximization of profits, net worth, etc.) and have generally been unable to account for the lumpiness of resources in a satisfactory manner. Non-optimizing models (simulation) have been used to simulate farm firm behavior over a number of specified periods. Multiple goals, indivisibilities, and elements of risk and uncertainty have been considered in one or more of the simulation models that have been formulated. Some

simulation models have focused primary attention on the importance of the relationships of credit reserves, cash flows, and capital investments to either the total growth of the firm or the estimated rate of growth.

For purposes of this discussion, past research efforts will be categorized according to the type of model used to investigate a specific problem. The following three categories have been selected: (1) polyperiod or dynamic linear programming models, (2) recursive programming models, and (3) simulation models.

Polyperiod Linear Programming Models

The forerunner of the more recent polyperiod models was developed by Loftsgard and Heady.[2] This model allowed annual expansion of hog production on a fixed-acreage farm. Perhaps its most significant feature was the transferring of net income for one year into available operating capital for the next year. Increases in operating capital were equal to the difference between the cumulative net returns for all activities and the sum of specified fixed charges and a household consumption allowance. This was an intermediate-run model that considered a single goal. External capital market factors were not considered (assumes all owned capital), and consumption was limited to a specified fixed level. Elements of risk and uncertainty, as well as social security and income taxes, were omitted from the model.

The Irwin-Baker model[3] was similar to the one formulated by Loftsgard and Heady. However, Irwin and Baker explicitly considered the external capital market. Thus, borrowing activities played an important role in their formulation.

Martin and Plaxico investigated capital accumulation and the growth process of farm firms in the Rolling Plains area of Oklahoma and Texas.[4] They were interested in analyzing the effects of different variables on the growth process, the simulation of different growth models to determine possible growth rates under different farm resource conditions, and in determining minimum starting equity situations required to obtain specific growth rates over time. A representative farm served as the basis of analysis in this polyperiod model. The farm operator controlled a specified bundle of resources, and he had the opportunity to grow by renting or purchasing land and other needed resources. Operating capital could be borrowed using owned resources as security. Capital was withdrawn each period to meet farm overhead and family living expenses. Over the planning horizon of 30 years, there were no opportunities for disinvestment, and no risk or uncertainty factors were included. Martin's results indicated that the maximization of the present value of net returns resulted in essentially the same capital accumulation and growth over time as did the maximization of the present value of gross sales, of the undiscounted value of net returns, of ending owned capital, and of acres of land operated. Capital rationing and the absence of a land rent alternative were restrictive on the growth process. Martin and Plaxico also found that farm expansion tended to decrease as consumption levels were increased.

Johnson's model[5] is similar to the Martin-Plaxico model except that a concept of risk is introduced into the analysis. A Monte Carlo simulation procedure is used to draw a sample value (equal to the average yield plus a random component) from a known crop yield distribution for each year of the 15-year planning period. Repetition of these steps

20 times provides a distribution of outcomes based on yield variance. Johnson's model maximizes net worth and is interrelated between years only by credit reserve equations.

Boehlje[6] expanded on the Martin-Johnson approach by reintroducing the question of enterprise choice each year. He did not include stochastic elements but did attempt to incorporate annual production and investment into a single model over ten time periods. The model includes four submatrices: (1) production and annual inputs, (2) investment, (3) credit (long and intermediate-term borrowing, principal and interest repayment), and (4) a division-of-income matrix used to apportion income between consumption and investment. Consecutive years in Boehlje's model are related by the following factors: (1) the effects of investment on the supply of durables in later periods, (2) the remaining capacity to borrow, and (3) the transfer of reinvestment capital between periods.

Eddleman and Golden used a minimum equity model to simulate farm firm growth.[7] Historical crop yields for each year were included for a 15-year planning horizon. Separate simulations were run beginning with both good and poor crop yields and for an average yield situation. Results indicated that both beginning equity requirements and ending net worth were highest when actual historical crop yields were used. Negative cash balances (which would have necessitated the refinancing of loans) occurred during years of low crop yields.

Recursive Programming Models

Recursive programming models take a slightly different approach to describing the decision process and the attendant changes over time.

A linear programming model for a single period is solved a number of times in sequence with slight alterations in each step. The constraints for a given period are dependent on the optimum solution for the previous period, and flexibility restraints are used to reflect temporary limits placed on the growth process by external factors. Early applications of this technique were made by Day, Schaller and Dean, and individuals associated with the development of the "FPED national model."[8] These models dealt with problems defined on an area basis; therefore, the associated restrictions were of an aggregate regional nature. Flexibility restraints were placed on the rate at which profitable, new technology could become available and on the rate at which labor would exit from the area's agricultural sector. In addition, upper and lower limits were placed on some external factors.

Heidhues[9] used the recursive linear programming approach to study the possible effects of alternative EEC policies on different types of farms in northern Germany. His model includes: (1) detailed accumulative equations to handle financial terms and (2) a fixed-asset concept associated with investments and disinvestments. The model also considers the environmental effect of technological and price variations and the effect of a rising nonfarm standard of living on farmers' income expectations. Adjustments within the model are associated with a time lag that represents both quasi-fixed factor supply limits and uncertainty. The objective function maximizes the accumulation of investment capital subject to consumption and other relevant restrictions.

Simulation Models

Eisgruber[10] developed a simulation model of a farm operation with

emphasis toward analyzing the effects of annual plans and land purchase decisions. Input variables for each year are the acreage of each crop, fertilization levels, types of livestock and associated livestock numbers, and the decision on land purchase. The model also includes an option for stochastic yield and price coefficients.

Patrick's annual farm operation submodel[11] was developed from Eisgruber's simulator but does not include the stochastic variable generator. Patrick's model draws heavily on behavioral concepts advanced by Simon[12] and others. Basic input data for the model include the starting resource position and three alternative levels for each of the following controlled variables: (1) interest rate, (2) managerial ability, (3) long-term loan limit, and (4) intermediate-term loan limit. The decision processes with the model are based on four family goals (living standard, farm ownership, leisure, and risk taking-credit using), price and yield expectations, and a consumption function that is related to family size and income level.

Harshbarger[13] reintroduced stochastic yield and price variations into Patrick's model. Land purchase opportunities were added, and the machinery complement was changed from 2-row to 4-row equipment. The model includes two goal structures: (1) income maximization where each plan is evaluated in terms of the expected level of income and (2) a desired annual increment to the level of net worth and attainment of a desired standard of living. Four sets of variables are controlled: (1) the two goal structures, (2) three equity constraints, (3) two loan limits for both intermediate and long-term loans, and (4) four land procurement policies. Harshbarger's results indicate that the ending level of net worth was dependent on how rapidly the farm operator could

acquire land, as well as on his attitudes toward risk aversion and borrowing. Results based on runs using the stochastic variable generator indicated that many of the nonstochastic models have had a tendency to overestimate growth rates.

Hutton and Hinman[14] have developed a general agricultural firm simulator that can simulate as many periods as are desired (these periods may be years or replications of a year). At the present time, there are no optimizing routines built into the simulator. Product outputs may be either deterministic or probabilistic. Yield and price variabilities are represented by standard deviations. Resources can be bought, sold, depreciated, and used as security for loans. Three categories of financial arrangements (real estate, chattel, and other) are included in the model. The problem in its entirety must be presented as data. Major data specifications include: (1) any changes in acreages owned and rented, (2) modifications in enterprise levels, and (3) principal payments in each period for each of the financial arrangements. Results of simulations are printed at the end of each period.

A simulation model developed by Lins[15] emphasizes financial strategies. The model considers both deterministic and stochastic yields and prices. Variables are stochasticized only to determine the effects on financial arrangements. Technological change is reflected in the model by trending crop yields and production costs. Lins did not replicate the growth process to provide a distribution of outcomes.

Bostwick[16] simulated the operation of a dryland cash grain farm for five different land-control strategies over a thirty year period under assumptions of average and stochastic yields. The land-control strategies simulated may be summarized as follows: (1) growth in equity,

(2) growth in scale by refinancing and land purchase followed by growth in equity, (3) growth in scale by renting followed by purchase and growth in equity, (4) growth in scale by purchase on a perpetual land mortgage, and (5) growth by renting with no increase in land ownership. The lowest average annual rates of total and cash firm returns were produced by the growth-in-equity strategy. The highest rates and absolute amounts of total and cash firm returns were produced by the rental and perpetual land debt strategies. Bostwick's results indicate that the equity goal is more readily satisfied after a resource scale goal has been achieved. This implies that strategies employing early and rapid increases in the scale of resources used are a more appropriate means of achieving eventual growth in net worth and/or equity than the more traditional strategy of striving directly for an increase in equity. These results and the associated implications are apparently due to the greater firm earnings that flow from a higher investment leverage in the early years of a planning period. Bostwick's simulations were done without the use of a computer program. This is the only non-computerized simulation discussed.

Flaskerud's model,[17] which is capable of simulating the growth of a firm producing small grains, forages, and beef cattle in a dynamic and uncertain environment, emphasizes growth via land acquisition. Built-in rules govern land procurement, investment, production, consumption, and credit decisions. Resource and product markets are assumed to be purely competitive. The simulator generates monthly cash flows and tests for solvency of the firm at specified intervals. The firm's operation over a 25-year period was replicated 35 times in the study to obtain a distribution of outcomes. The effects of the following four variables

were studied: (1) methods of land acquisition, (2) different production plans, (3) alternative financial arrangements, and (4) levels of beginning equity in land. Flaskerud's results indicate that the amount of credit obtainable on various assets appeared to be the most important aspect of a financial arrangement. Production plans including crops, cows, and feeders were most conducive to land purchase and growth in net worth, while production plans including only crops and feeders allowed the highest consumption level over the 25-year period. With 35 percent equity in land, firm growth was possible under both the rent and rent-purchase methods of land acquisition.

Other studies using simulation models similar to one or more of the models discussed above are reported by Halter and Dean, Hutton, and Butler.[18]

The remainder of this dissertation is organized as follows. Chapter II discusses the conceptual framework underlying the development of the analytical model. Chapter III includes a discussion of the simulation model used, data requirements of the simulator, and sources of data. Chapter IV presents the empirical results. Eighteen different operator age-farm size-initial tenure situations are analyzed. Chapter V contains an evaluation of the study, as well as a discussion of implications and limitations. Chapter VI is comprised of a summary of the study and needs for further research.

FOOTNOTES

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CHAPTER II

CONCEPTUAL DEVELOPMENT

The neoclassical theory commonly used to analyze decisions faced by a firm has as its central theme that utility maximization on the part of consumers and profit maximization on the part of producers serve as dominant guides in the allocation of resources to specific uses. One of the basic underlying assumptions of this body of theory is that consumers and entrepreneurs possess perfect knowledge. In addition, many variables of importance in intrafirm relationships are "held constant."

Since firms do not operate in the world postulated by neoclassical economic theory but do exist in an environment characterized by continual change, imperfect knowledge, and disequilibrium, the conclusions drawn from using such theory frequently do not reflect reality. Although the conclusions may follow logically from the assumptions made, these assumptions fail in many cases to accurately describe the factors that influence firms in the real world. However, traditional theory does provide a useful starting point even though its absolute effectiveness may be limited due to the inclusion of assumptions that do not parallel reality and to the exclusion or constancy of some relevant variables.

In order to provide a more thorough understanding of the problems and decisions faced by a farm firm that is attempting to survive and

grow, it is necessary to consider the characteristics of farm firms and to isolate relevant variables that can be quantified and incorporated into an analytical model.

Characteristics of a Farm Firm

A farm firm necessarily encompasses the farm family as well as the physical and financial resources controlled by the farm business, i.e., the farm firm exhibits a close interdependence that often makes it impossible to separate decision-making into family and business categories. The goal or goals of the farm operator are influenced by family conditions and desires. This influence will be reflected in decisions concerning the farm business. Although the business and the farm family may be competitive or complementary at different times, they cannot be independent because of uncertainty, limited capital considerations, and changing family characteristics over time, such as family size and family-related goals.

The firm's income stream must be allocated between debt repayment and current consumption by the farm family and reinvestment in the business to provide for future income and consumption. The severity of this conflict of family and business for available capital resources may increase if the income stream is reduced. Internal and external capital restrictions may be important factors in determining the firm's capability to survive and grow.[1]

A desire for security in the later years of the farm operation may cause the farm family to strive for ownership even though tenancy or part-ownership may be more profitable alternatives. The farm family's attitudes concerning risk and uncertainty may dictate

diversification or flexibility to avoid risk while sacrificing income.

Resources of the farm firm and the farm family (e.g., labor and management) may be combined in a seemingly inefficient manner. However, the existing combination may yield greater "returns" to the farm family because of the importance of some noneconomic rewards to them.

Other Related Factors

It is recognized that differences exist between "what is" in reality and "what should be" as predicted by economic theory. Many of these differences cannot be explained by the amount or the quality of the physical resources used in the production process. The managerial ability of a farm operator is one factor that is frequently considered to be largely responsible for differences that occur between predictions based on neoclassical economic theory and empirical observations.[2]

Recommendations to farmers concerning farm size, general organization, cropping practices, and livestock practices that ignore the individual's managerial ability may be detrimental to the firm's progress over time. The overall managerial ability of the farm operator and his decision-making process are influenced by his goals, expectations, technical skills, and family situation interacting with each other as well as with other factors.

Lending institutions tend to use a concept of "average managerial ability" in determining the debt-load capacity of farmer borrowers. The loan limits set may influence the possibilities for success and the rate of growth of farm firms. Whereas, low loan limits may retard firm growth, a liberal lending policy that allows above average

managers to realize their full potential may result in letting below average managers over-extend themselves.

Multiple Goals

Although the existence of multiple goals in the decision-making process has been recognized for years by economists,[3] economic analyses are typically based on the assumption of maximization or minimization of a single goal. A single goal, for example profit maximization, is used for two primary reasons: (1) it is operational and (2) it provides an analytical approximation of firm behavior. Problems such as the identification of relevant goals, determining the relative importance of multiple goals, and developing a suitable analytical tool that is capable of simultaneously evaluating multiple objectives tend to discourage anyone contemplating the inclusion of multiple goals in an economic analysis. Some analyses have considered two or more goals by maximizing one goal subject to constraints on the remaining goals.[4] In other cases, utility functions that incorporate expected income and income variability have been estimated for individual farm operators.[5]

One important feature of a firm-growth model in which multiple goals can be incorporated is that the goals be allowed to vary in relative importance over time. Dynamic linear programming has the capability of optimizing a single objective function over time, but it does not have sufficient flexibility to allow the objective function to be changed during the planning horizon. Another specific limitation of dynamic linear programming is that complete certainty is assumed with respect to knowledge of prices, yields, and resource supplies for the entire planning period. The development of simulation routines for farm firm

analyses provides sufficient flexibility to allow for the incorporation of multiple goals within a production period or over time and for the inclusion of yield and price uncertainty throughout the planning period.

Simulation models designed to select the best combination of financial and production strategies for a farm firm over time require a detailed specification of the farmer's goals, how the goals are used in decision-making, and how the goals change over time. Usually, this information is not stated explicitly, but it is implicit in the analysis. Even though it may be impossible to furnish all of the needed information concerning goals and their use in decision-making, additional information indicating the ranking or hierarchy of goals and how this hierarchy differs for farmers under alternative economic and noneconomic conditions provides a better basis for selecting organizational and financial strategies.[6]

Development of the Analytical Model

Based on the advantages and disadvantages discussed above, simulation is used as the primary technique of analysis in this study. In order to satisfy the objectives specified earlier, it is necessary to consider multiple goals, yield variability, consumption by the farm family, and methods of land acquisition. Several questions must be answered to provide a logical framework of analysis: (1) What is the theoretical base from which a model incorporating these variables can be constructed? (2) Is there a simulation routine in existence that can handle the specified variables in its present form or that can be modified for use in the study?

Theoretical Base

Multidimensional utility theory has two very basic assumptions relative to the goals of the decision-maker.[7] First, it is assumed that he has a hierarchy of goals, i.e,, he can develop an ordinal ranking of his goals. Second, the decision-maker has a satisficing level associated with each goal in his hierarchy. The next necessary component is a set of alternative strategies (plans of action) that are available for implementation by the decision-maker.

Given these assumptions and a set of plans, what procedure does the decision-maker follow in attempting to maximize his utility? The dominant or top-ranked goal is considered first. If all plans meet the satisficing level specified for the dominant or top-ranked goal, the second-ranked goal becomes the relevant decision criterion, and the decision-maker determines which plans meet or exceed the satisficing level for the second goal. Successively lower ranking goals are considered until all but one plan has been eliminated.

The two-dimensional case illustrated in Figure 1 can be used to clarify the selection process used by the decision-maker. If X_1 is net farm income and X_2 is leisure time, let X_1^* and X_2^* be the satisficing level for net farm income and leisure time, respectively. In this example, net farm income (X_1) is the dominant or top-ranked goal. Points on the graph labeled $X^1, \ldots, X^7$ represent different plans available for use by the decision-maker. If only plans X^1 and X^2 are considered, plan X^2 is preferred because it has a higher level of net farm income. The leisure time goal is not considered in making this choice because neither plan meets the satisficing level of the dominant

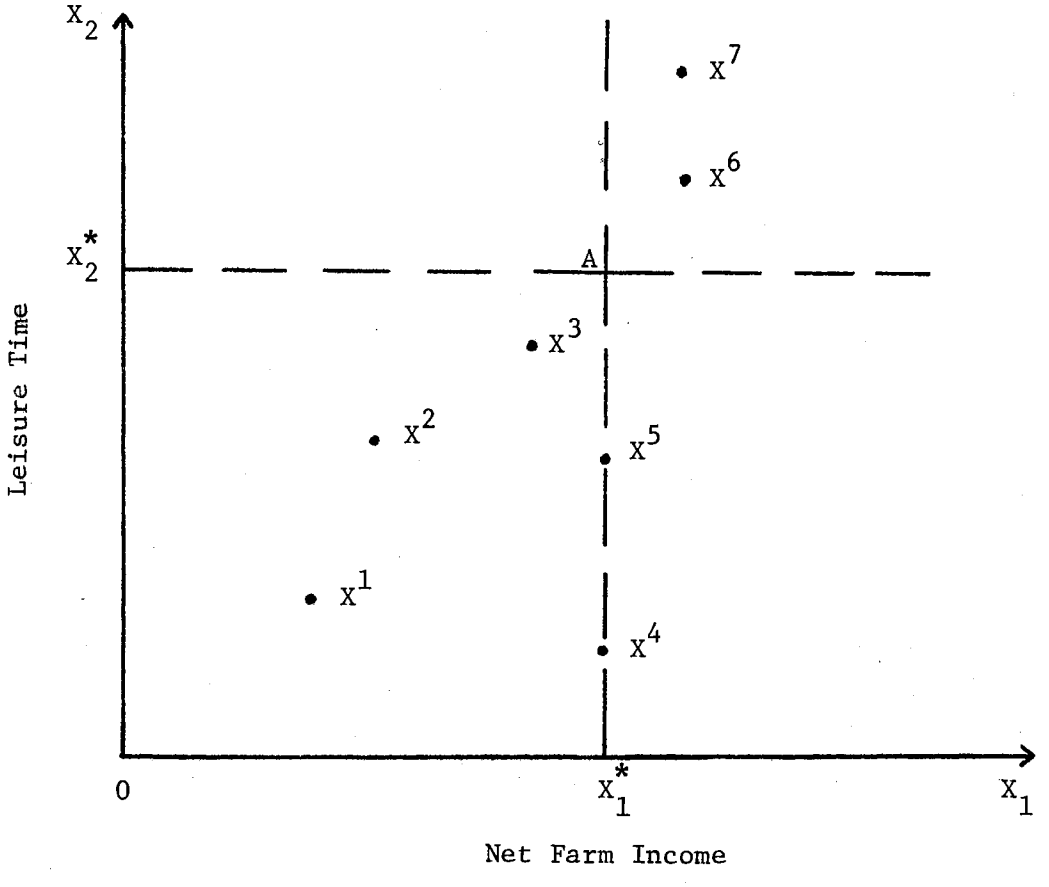

Figure 1. An Illustration of Multidimensional Utility Analysis

goal. If one considers plans X^1, X^2, and X^3, X^3 is preferred to X^2 since net farm income is higher for X^3. The fourth plan (X^4) is preferred to the three previous plans considered because it does provide the satisficing level of net farm income. Plan X^5 is preferred to X^4 because it provides a higher level of the second goal, as well as meeting the satisficing level of the dominant goal. If a plan were located at the intersection of the satisficing levels, point A in Figure 1, it would be preferred to X^5 since the satisficing levels for both goals would be met. Plans X^6 and X^7 are equally preferred in the multidimensional utility framework. Thus, the preference ordering of plans in Figure 1 is $X^7 = X^6 > X^5 > X^4 > X^3 > X^2 > X^1$, where $>$ is read as preferred to and $=$ is read as equally preferred to.

There are two major problem areas associated with using the multidimensional utility approach. First, this approach does not acknowledge any substitution or tradeoff between goals. Second, the researcher immediately encounters problems concerning the estimation or establishment of a hierarchy of goals, how this hierarchy changes over time, and the estimation of the satisficing levels associated with each goal in the hierarchy.

Modifications of the Multidimensional Utility Concept

The procedure used in this study is very similar to multidimensional utility analysis. The strongest similarity is the use of a hierarchy of goals in conjunction with satisficing levels for each goal. In addition, tradeoff or substitution between goals is not acknowledged. The basic difference between the approach selected and multidimensional

utility analysis is the method used to select the plan to be implemented using the decision-maker's hierarchy of goals as the basic decision criterion. The model is constructed to (1) estimate a hierarchy of goals, (2) evaluate a specific set of plans, and (3) choose between alternative plans taking into account the estimated goal hierarchy. The purpose of this section is to present a conceptual development of the model. The specific, computational-type details are discussed in later sections.

The selected approach has several advantages over multidimensional utility analysis. First, a plan or strategy is not considered a relevant alternative unless the satisficing levels of included goals are met. Thus, X^1, X^2, X^3, X^4, and X^5 in Figure 1 would be excluded. Second, the model does not allow for equal preference between plans, and it does have built-in, decision-making criteria based on the estimated goal hierarchy. The decision criteria are discussed in detail in Chapter III. Third, the model used in this study estimates changes in the goal hierarchy over time as a function of specified characteristics of the decision-maker and of the firm. Finally, multidimensional utility analysis assumes marginal utility is zero once the satisficing level for a goal is met. The selected approach has as a basic assumption that marginal utility is greater than zero at points (or for plans) beyond the satisficing level for a goal. Therefore, the plan is selected that maximizes or minimizes the top-ranked goal, depending on the nature of the goal.

Various individuals have advanced methods of estimating attitudinal preferences. Two of the more popular and frequently used techniques are the Guttman scale and Kendall's rank correlation.[8] The work of

L. L. Thurstone in 1927[9] provided impetus for a number of analytical techniques which are collectively referred to as the Method of Paired Comparisons.[10]

Bostwick, et al., conducted a comparative study of the Guttman scale, Kendall's rank correlation, and the paired-comparison technique in evaluating the attitudes of farmers and bankers with regard to essential borrower characteristics and attitudes toward borrowing.[11] They viewed each method as a means of identifying attitudes and characteristics, but they note the limitations of each method. Guttman's scale analysis only divides responses into groups that either favor or do not favor various aspects of credit use. This method requires at least 100 respondents per group being evaluated and does not rank items relative to each other.

Kendall's rank correlation analysis provides an ordinal ranking of items but does not indicate the relative position of one item to another, i.e., it delineates a simple rank ordering of items with no distinction between closely or widely ranked items. In contrast, the paired-comparison technique not only provides an ordinal scale, but it also provides an estimate of each item's numerical position on the scale. A disadvantage of this technique is that an individual must indicate the preferred item for all possible combinations of pairs. This makes the enumeration and analysis more complicated than the rank correlation method. Bostwick, et al., judged the rank order developed by paired comparisons to be more precise because it estimated the disparity and/or closeness of attributes in a scalar framework.

Regression equations can be used to estimate the scalar value of each goal as a function of specified characteristics.[12] These

estimating equations also provide a framework for estimating changes in the goal hierarchy over time as the decision-maker's characteristics change. The equations developed by Harman, et al., are used in this study to estimate the goal hierarchies.

Alternative plans are specified that include both expansion and nonexpansion opportunities. The plans are evaluated by simulating each plan using prespecified prices and yields (which are furnished as input data). Within each plan, a set of values called strategy decision values is computed. These values are based on the simulated results of each plan, and a strategy decision value is calculated for each goal in the hierarchy. For example, if one goal being considered is to increase net worth, the associated strategy decision values may be defined as the anticipated ending net worth for each plan. A strategy decision value represents a point estimate for a goal if a given plan is chosen. A set of minimum values (or satisficing levels) is developed independently of the plans based on an equation for each goal. This set of equations primarily uses variables from the last production period. For example, if one's goal is to increase net worth, the satisficing level may be defined as the ending net worth from the previous year.

Scale values are estimated for each goal using the equations shown in Appendix A. The hierarchy of goals is divided into three groups based on the two largest differences between scale values. Primary goals (all goals in the top two groups) are used in the decision process. Secondary goals (goals in the bottom group) are considered irrelevant and are not used in the selection process. For a plan to be chosen, it must have the highest strategy decision value (if the goal

is maximizing in nature) for the top-ranked goal where goals in the hierarchy are ranked from high to low based on the estimated scale values. In addition, the chosen plan must meet the satisficing levels of all remaining goals in the primary group. If one or more of the satisficing levels cannot be met by the selected plan, the plan having the second highest value for the dominant goal is considered. A default option of continuing with the present organization is activated if none of the plans can meet the required satisficing levels or if the strategy decision values for all included goals in the primary group are tied. This default option is included primarily for operational convenience so that simulations will be completed for the specified planning horizon.

As a brief summary of the difference between the proposed selection procedure of a plan and the procedure followed in multidimensional utility analysis, refer back to Figure 1. In multidimensional utility analysis, the seven plans shown in Figure 1 would be ranked $X^7 = X^6 > X^5 > X^4 > X^3 > X^2 > X^1$. Plans X^6 and X^7 are equally preferred, and the decision-maker is essentially indifferent between them. However, both X^6 and X^7 are preferred relative to the other three plans since they meet the satisficing level for both goals. Assuming that both goals are in the primary group, the modified approach proposed would exclude X^1, X^2, X^3, X^4 and X^5 because at least one satisficing level is not met. Plans X^6 and X^7 are not equally preferred in the modified approach. The criterion used in this study specifies that if two plans are tied with respect to the dominant goal than the second-ranked goal is to be used as the choice criterion. In this case, X^7 would be chosen over X^6 since the level of leisure time is greater in X^7.

Plans X^3, X^4, and X^5 in Figure 2 would be equally preferred within the framework of multidimensional utility analysis. Figure 2 is representative of the case in which net farm income is the only goal in the primary group. If one is using the modified approach in selecting a plan, X^3 would be chosen since it provides the maximum level of net farm income. Plans X^1 and X^2 are not considered as relevant alternatives since they do not meet the specified satisficing level.

Choice of a Simulation Routine

An evaluation of available simulation routines revealed that a routine does not exist that can handle the variables specified for this problem without modification. However, the General Agricultural Firm Simulator developed by Hutton and Hinman[13] does provide a basic simulation package that can be modified. The primary modifications needed are as follows:

1. Allowing for the use of an external data file to communicate farm and operator characteristics required in developing a hierarchy of goals and to communicate the basic farm organization over time; and
2. Incorporating decision rules for selecting one of several specified plans to be implemented for the next production period(s) using the hierarchy of goals as choice criteria.

The basic logic of the General Agricultural Firm Simulator and a discussion of the subroutines added to incorporate multiple goals as decision-making variables are included in the next chapter.

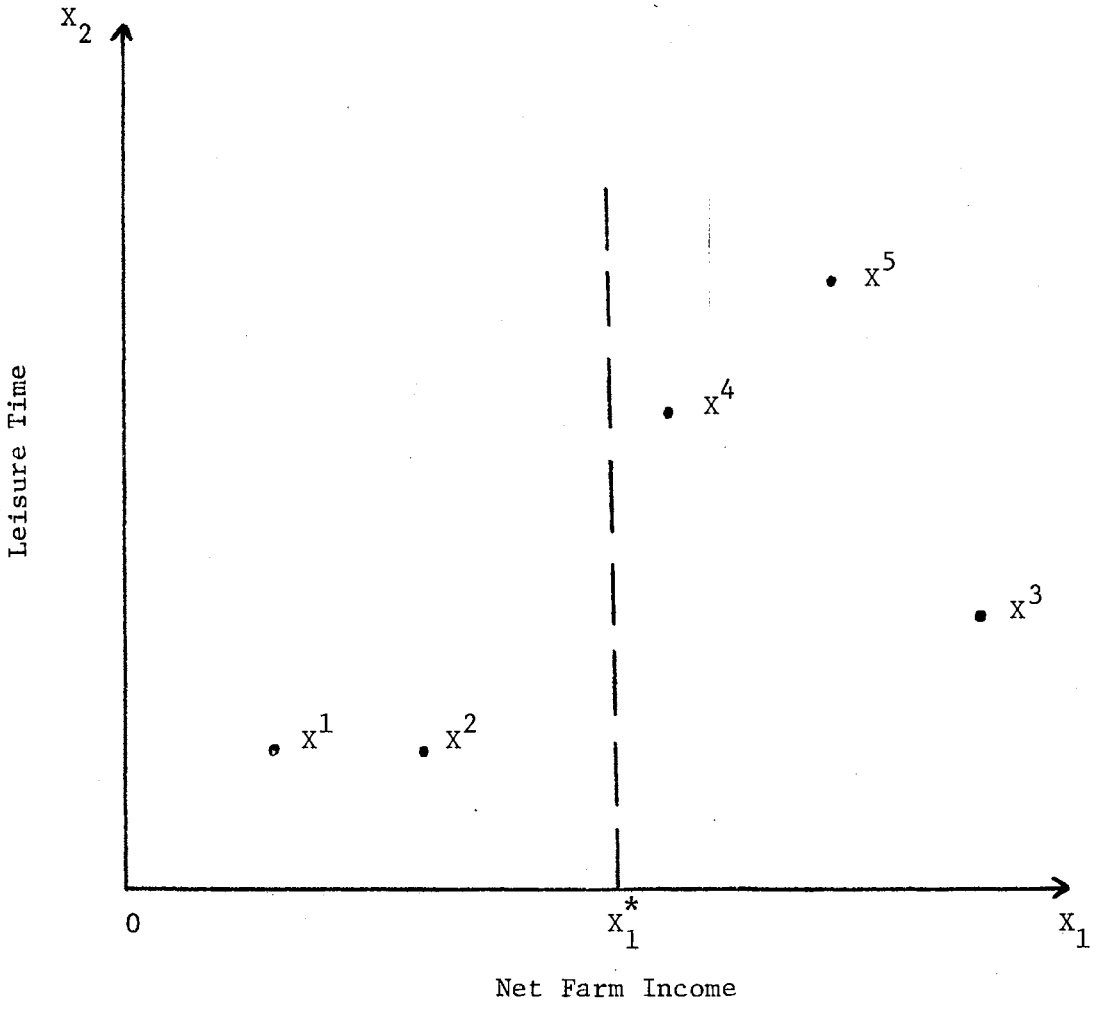

Figure 2. An Illustration of Modified Multidimensional Utility Analysis with Only One Goal in the Primary Group

FOOTNOTES

[1]Ulf Renborg, "Swedish Experiments in Planning for Economic Growth of Agricultural Firms," Economics of Firm Growth, Great Plains Agricultural Council Publication No. 29 (June, 1967), p. 60.

[2]Earl O. Heady, Economics of Agricultural Production and Resource Use (New York: Prentice-Hall, 1957), pp. 536-537.

[3]William J. Baumol, Economic Theory and Operations Analysis, 2nd Edition (New Jersey: Prentice-Hall, 1965), pp. 295-310; see also R. M. Cyert and J. G. March, A Behavioral Theory of the Firm (Englewood Cliffs: Prentice-Hall, 1963), pp. 26-43.

[4]Vernon R. Eidman, et al., Decision Models for California Turkey Growers, Giannini Foundation Monograph No. 21, (July, 1968); J. R. Martin and J. S. Plaxico, Polyperiod Analysis of Growth and Capital Accumulation of Farms in the Rolling Plains of Oklahoma and Texas, USDA Technical Bulletin 1381 (September, 1967). In addition to the specific works cited, many of the studies discussed in the review of literature section of Chapter I (as well as many uncited works) have used this method to incorporate influences of more than one goal.

[5]R. R. Officer and A. N. Halter, "Utility Analysis in a Practical Setting," American Journal of Agricultural Economics, Vol. 50 (1968), pp. 257-277.

[6]Wyatte L. Harman, et al., An Evaluation of Factors Affecting the Hierarchy of Multiple Goals, Oklahoma Agricultural Experiment Station Technical Bulletin T-134 (June, 1972), p.6.

[7]C. E. Ferguson, "The Theory of Multidimensional Utility Analysis in Relation to Multiple-Goal Business Behavior: A Synthesis," Southern Economic Journal, Vol. 32 (1965), pp. 169-175.

[8]L. A. Guttman, "A Basis for Scaling Quantitative Data," American Sociological Review, 9 (April, 1944), pp. 139-150; M. B. Kendall, Rank Correlation Methods, 3rd Edition (New York: Hafner, 1962).

[9]L. L. Thurstone and E. J. Clave, The Measurement of Attitude (Chicago: University of Chicago Press, 1929).

[10]R. D. Bock and L. V. Jones, The Measurement and Prediction of Judgment and Choice (San Francisco: Holden-Day, 1968); A. L. Edwards, Techniques of Attitude Scale Construction (New York, 1957), pp. 19-82.

[11]Don Bostwick, James Esmay, and Gordon Rodewald, Attitudinal Research Relating to Farmers' Use of Short-Term Credit, USDA-ERS 25 (October, 1961).

[12]Harman, et al., pp. 45-54.

[13]R. F. Hutton and H. R. Hinman, A General Agricultural Firm Simulator, revised, Pennsylvania Agriculture Experiment Station, Bulletin No. 72 (July, 1969).

CHAPTER III

THE SIMULATION MODEL AND ITS DATA REQUIREMENTS

As indicated previously, the General Agricultural Firm Simulator provides the basic subroutines needed and is adapted to include the multiple-goal concept. The following discussion briefly summarizes the basic simulator and describes the subroutines added to incorporate multiple goals.

The General Agricultural Firm Simulator

The basic purpose of the simulation routine as developed by Hutton and Hinman is to provide a general structure that can be used to solve a number of problems without having to develop a specific computer program for each problem. A variety of information is necessary to describe the set of production possibilities and market conditions within which the firm operates. The required data is arranged in a series of eight tables and is eventually punched on computer cards to be read into the simulator. The first table consists of the input allowances (requirements) for each crop and livestock enterprise to be considered in the model. Column headings are used to identify the enterprise, and row titles are indicative of the input services required in the production process. Coefficients in the body of the table represent the number of units of each input service required to produce a unit of an enterprise (acre or head). The second table

summarizes output or production per unit (e.g., bushels per acre), product prices, and government payments (for situations where they are included). The third table is used to specify characteristics of the input services. Separate columns are included for each of the following characteristics: (a) rental rate per unit of service, (b) purchase cost, (c) units of service provided, (d) total life, (e) security class for borrowing purposes, (f) minimum number of units that can be purchased or rented at one time, (g) property tax on capital assets, (h) insurance cost per dollar of value, and (i) repair cost as a percent of purchase price. In addition, current income tax rates applicable to a joint return are specified in column 16 of the third table. (For this study, twenty-five entries are included, i.e., one tax rate for each $1,000 interval up to $25,000 of taxable income.)

The fourth and fifth table of the data set are applicable only if the probabilistic mode is to be used; their purpose is to describe output variability. The entry in each cell of the fourth table is the standard deviation for the corresponding output entry in the second table. The entry in each cell of the fifth table is the limit to the number of standard deviations in production (i.e., the number of units of standard deviation that output can depart from the mean value). The use of these two tables allows one to apply a standard deviation and a limit to each product of a multiple-product enterprise.

The sixth table of data contains the current inventory of capital assets. The numbers in column 1 correspond to rows of input services specified earlier in the first and third tables. Column 2 entries indicate the number of units of capital associated with each class of

input service. Column 3 entries specify the age of each capital asset at the beginning of the simulation run.

The seventh table of the data set is comprised of two parts. Part I is used to specify the enterprise organization (crops and livestock) and the level of each enterprise for the farm firm being simulated. Part II is used to specify the purchase or sale of capital assets.

The eighth table includes a wide variety of data with emphasis on financial variables. For example, several cells are used to specify outstanding debt levels, interest rates, annual payments, and length of payment periods for real estate, chattel, and open loans. Security levels, minimum cash, withdrawals for consumption, off-farm income, the mode of run (deterministic or probabilistic), and the number of years to be simulated are also included in this table.

After data included in the eight tables have been read into the simulator, certain steps or calculations are performed in logical order. Hutton's discussion of the logic of computations within the simulator[1] is followed closely in this section.

The General Agricultural Firm Simulator is comprised of a master program plus six major subroutines (INPUT, CAPTAL, CAP, NEEDS, PROD, and REPORT). The INPUT subroutine has as its primary function the reading, checking, and proper storage of data included in the eight data tables discussed above. The first major calculations are associated with capital management operations included in CAPTAL and CAP. Within these subroutines, the following steps are completed:

1. Debt levels are increased or decreased as specified by input data;

2. Capital assets are purchased (and added to inventory) or sold (and dropped from inventory);
3. Fully-depreciated capital assets are dropped from inventory (straight-line depreciation and a zero salvage value for depreciable assets is assumed); and
4. There is an automatic adjustment of the debt structure to conform with the security requirements and the maintenance of cash balances specified as data (e.g., if the cash balance is below the minimum level specified, short-term borrowing is activated to restore the cash balance to the minimum level). Although no absolute maximum is placed on borrowing, a specified debt-asset ratio acts as a control agent.

The second set of major computations is performed in the subroutine NEEDS. Total quantities of inputs required and the total output of each enterprise are calculated (inputs and outputs are specified on a per unit basis in the data tables, e.g., per acre, per head, etc.). These computations are based on the enterprise levels specified as data. If the simulation is done deterministically, output is calculated using the mean values given in the second data table. The probabilistic feature of the simulator used in this study involves the following steps: (1) a random normal deviate is drawn, (2) the deviate is multiplied by the appropriate standard deviation, and (3) the result of the multiplication is added to the mean output. This procedure is followed for each product listed in the second data table. A critical assumption built into this subroutine is that yields for the included enterprises are normally and independently distributed.

The subroutine PROD controls the next major group of computations. The primary purpose of this subroutine is to compute the quantity of input services available from the capital inventory and to prepare the financial statement. In order to satisfy this purpose, the following steps are completed:

1. The age of all capital assets is incremented by one year;
2. A check is made for the addition of current production to inventory;
3. The quantity of each input service required is deducted from the available supply. If a shortage exists and it is not satisfied by intermediate products, direct purchase is used to meet the shortage; and
4. Prices and costs are applied to yields and input services, respectively, and the financial statement is prepared.

The financial statement, which reflects the financial condition of the firm at the end of each year includes the following items:

1. The current value of total assets, total debts, and net worth;
2. Family and hired labor;
3. Cash operating income from crops, livestock, and government payments;
4. Capital purchases (the cost of all depreciable capital items or machinery purchases in this study);
5. Inventory increase (capital purchases minus inventory decrease);
6. Inventory decrease (depreciation on machinery, etc.);
7. Gross farm income (cash operating income plus inventory increase);
8. Cash operating expenses (repairs and maintenance, property

taxes, insurance, interest, labor, and cash costs for the entire farm operation);

9. Gross farm expense (cash operating expenses plus capital purchases);
10. Net farm income (gross farm income minus gross farm expense); and
11. Net cash operating income (cash operating income minus cash operating expenses).

Income and social security taxes, payment of debt principle, and withdrawals for current consumption must be covered by net cash operating income. If a positive cash balance exists after these items are deducted, it is added to the existing cash balance, and total assets are increased by the amount of the excess cash reserve.

Modifications of the General Agricultural Firm Simulator[2]

External Data File

The first modification is the inclusion of the capability to feed additional data into the simulator from an external file. The current use of this capability is to provide additional data needed to estimate scale values for included goals. The specific data items provided are the operator's age, years of farming experience, his educational level, the number of dependents, his off-farm income, the level of enterprises included in the farm organization for the time period to be simulated, acres of cropland owned, and acres of rangeland owned. These items must

be furnished for each year of the planning horizon if a multi-period run is desired.

Included Goals and Estimation of Associated Scale Values[3]

Goals considered in this study were obtained from previous research efforts and consultations with individual farmers and extension specialists in the study area. The resulting list (which included sociological, economic, and production goals) was reduced by eliminating goals that could not be quantified in simulation analyses and those judged to be of lesser importance. In some cases, similar goals were combined into one statement. The following eight goal statements were selected for use in this study and are referred to frequently throughout this dissertation:

1. Control more acreage by renting or buying;
2. Avoid being forced out of business;
3. Maintain or improve family's standard of living;
4. Avoid years of low profits or losses;
5. Increase time off from farming (leisure time);
6. Increase net worth from farm or off-farm investments;
7. Reduce borrowing needs; and
8. Make the most profit each year (net above farm costs).

The five operator characteristics communicated via the external data file are used by one or more of the equations to estimate scale values for the included goal statements (see Chapter II and Appendix A). Other variables required for estimating scale values and establishing a hierarchy of goals that are generated within the simulator are:

farm income, assets, debts, net worth, debt-asset ratio, land operated (total land and cropland), acres of owned land (total land and cropland), and proportion of land owned (total land and cropland). One production period must be simulated using the conventional data before a goal hierarchy can be estimated since some needed variables are generated within the simulator.

Subroutines Added to the Simulator

The four subroutines added to the basic simulator are GOALS, STRAT, CHOOSE, and TIE. The GOALS subroutine contains the equations used to estimate a scale value for each of the goals delineated above. The eight goals are ranked from high to low on the basis of the estimated scale values, and the estimated values are converted to a zero to one scale. Goals are divided into three groups based on the largest scalar differences observed in the zero to one scale. The goals in the top two groups are classified as secondary goals. The primary goals are used in the multiple-goal, decision-making process (discussed later in this chapter), whereas the secondary goals are assumed to be irrelevant and are not used in the decision-making process for that year. Immediately following the determination of the primary goals, alternative strategies (or plans) are simulated using specified yields. These plans are an integral part of the GOALS subroutine and must be rewritten by the user if changes are desired. The plan evaluations discussed in Chapter II are indicated by a message immediately following the header card and prior to the purchase or sale of assets so that evaluations can be easily distinguished from the simulation of actual production periods. If a message does not appear, the results

following the header card are for an actual production period in which yields may be determined either stochastically or deterministically.

The STRAT subroutine uses the simulated results of each plan to calculate strategy decision values defined in Chapter II. A strategy decision value is computed for all goals in each plan simulated. After all plans are simulated, a plan is selected for implementation in the next production period. The CHOOSE subroutine checks the strategy decision values of all goals in the primary group against their respective satisficing values. If all satisficing values for primary goals are met by the plan that maximizes or minimizes the top-ranked goal, then that plan is chosen for implementation. The nature of the goal determines whether the goal is actually maximized or minimized in a numerical sense. If none of the alternative plans meet the satisficing levels of the primary goals, a default option of continuing with the current organization is assumed. The default strategy allows a firm to continue operating until plans are evaluated again.

If two or more plans (for which the satisficing levels of all primary goals are met) happen to be tied with respect to the top-ranked goal, the subroutine TIE evaluates successively lower-ranked goals until one of the tied plans maximizes (or minimizes) the first non-tied goal in the hierarchy. For plans to be tied thus activating this subroutine, the strategy decision values for the dominant goal must be equal (out to the last recognized decimal fraction) in at least two plans. The default strategy of continuing operation with the current organization is assumed if all strategy decision values for the primary goals are tied.

Changes in Logic

Several additional changes have been made within the basic subroutines of the simulator written by Hutton and Hinman. One of these changes concerns machinery purchases. The basic simulator does not have the capability of automatically replacing machinery when it is fully depreciated or of adding machinery as use-levels increase. The CAP subroutine has been revised to provide these capabilities. The subroutine used in this study automatically replaces fully-depreciated machinery items if they are used by enterprises included in the farm organization. A feature is also included to add machinery items to the existing inventory if use requirements are increased to specified levels due to increases in farm size. Machinery items purchased because of an increase in requirements are assumed to be purchased at the current age of the original item. Since a specified level of utilization is required before a fully-depreciated item will be replaced in the inventory, a rental rate must be specified for each machinery item to insure that a charge is made for all machinery items used.

Another change in the basic logic of the simulator concerns the prepayment of debts. The revised CAP subroutine assumes that for any period cash in excess of minimum cash requirements[4] will be used to cover new borrowing associated with open accounts, chattel, and real estate. If excess cash still exists, old debts will be paid with the order of priority being open account, chattel, and real estate debts. The order of payment assumes that the interest rate for new open account borrowing is at least as high as the interest rate for

new chattel borrowing, and the interest rate for new chattel loans is at least as high as the interest rate for new real estate borrowing. Likewise, the same reasoning applies to existing debts. One limitation of the logic is that excess funds may be paid toward new borrowing prior to the prepayment of an existing debt having a higher interest rate, e.g., using excess cash for a new low interest real estate loan instead of prepaying an existing chattel debt having a higher interest rate.

Another revision involves the compaction feature of the inventory array. The ability to compact the inventory array has been removed to facilitate revising the basic set of resources as growth occurs. In particular, available labor, land resources, cows, and machinery items can be varied in quantity according to the size of the farming operation.

Alternative Plans or Strategies

Four plans or strategies have been selected to represent alternatives available to farm operators in this study. The selected plans are not the complete set of opportunities available to an individual farm operator in an actual situation. For example, all included plans are land based, and non-land-based alternatives do exist. However, limited computing funds necessitate considering only a small number of alternatives. The specific plans included are:

Plan 1--no change in the physical size (or acres operated) of the firm;

Plan 2--cash rent an additional 320 acres;

Plan 3--purchase an additional 320 acres; and

Plan 4--release rented acreage and purchase an equivalent amount. The number of acres to be rented or purchased in Plans 2, 3, and 4 are controlled by the parameter LONG which can be changed from one run to the next. For example, if LONG is set equal to 160 acres, then 160 acres are added to farm size when Plans 2, 3, and 4 are simulated. One critical assumption associated with the plans that increase total acres operated is that all new land brought into the organization (whether rented or purchased) has the same proportion of crop enterprises and the same cropland-rangeland distribution as the basic organization. A similar assumption is associated with purchased acreage in Plan 4. The frequency with which plans are evaluated is also controlled by a parameter that can be specified by the user. The parameter value selected for this study is 4. Thus, plans are evaluated five times in the 20-year planning horizon (prior to years 2, 6, 10, 14, 18). The plan that releases rented acres and purchases an equivalent amount (Plan 4) will not be evaluated unless acres operated exceed owned acres, i.e., rented acreage must be available for release before an equivalent acreage can be purchased.

Several built-in assumptions are associated with the included livestock enterprises. The inclusion or exclusion of enterprises is controlled through the external data file. Any nonzero entry in the external data file for a particular enterprise indicates that the enterprise is included in the farm organization at a level calculated within the simulator. Stocker numbers are computed assuming complete certainty, i.e., numbers are recomputed for each production period based on the actual amount of grazing available.

The cow herd may increase if additional native range in the April to October season becomes available, e.g., if farm size (and thus acres of native pasture) increases. The size of the cow herd is not changed based on stochastic yields related to forage production.

Strategy Decision Values and Minimum Satisficing Levels

The strategy decision values are direct ("expected") results of the plan being considered. With the exception of the leisure time goal, each satisficing level is based on data from the previous production period. Since the strategy decision values and satisficing levels actually control a firm's decision between alternative strategies, the definition of each value may prove to be critical with respect to a firm's growth path over time. The following discussion summarizes the definition and calculation of the minimum or maximum satisficing level and strategy decision value for each goal.

Control More Acres by Renting or Buying

The minimum satisficing level for the goal of controlling more acres is defined as the total acres of land (including rangeland) operated at the end of the last production period.

The strategy decision value for this goal is simply the summation of acres of land used (both cropland and rangeland) by the enterprises included in the planned farm organization.

Avoid Being Forced out of Business

The satisficing level for avoiding liquidation of the firm is

actually a maximum that cannot be exceeded by a plan. It is the variable, SAFE, and is defined by Hutton and Hinman as the level of equity (percent) below which specified loan security requirements must be met.

The strategy decision value is computed by the following formula:

STRAT (K, 2) = [DEBT(1) + DEBT(2) + DEBT(3)]/YREND

where

DEBT(1) = real estate debt outstanding;

DEBT(2) = chattel debt outstanding;

DEBT(3) = open debt outstanding; and

YREND = value of all physical assets at year's end.

Maintain or Increase Family Living

The strategy decision value for this goal is calculated by a consumption function estimated from farm survey data[5] and is identified as the variable TAKOUT in the simulator.

The satisficing level for the consumption goal is dependent on either welfare-based limits or the level of family consumption in the last production period. The initial minimum is based on welfare limits and is calculated as $2,720 plus $600 per child.[6] In succeeding decision years, if TAKOUT less one standard deviation is greater than the welfare-based limit, the functional estimate becomes the effective satisficing level. This last condition simply means that a plan must result in a higher expected consumption level than is estimated by the expression (TAKOUT from the previous production period less one standard deviation of the consumption function). This process allows for variation in consumption between good and bad years.

Avoid Years of Low Profits or Losses

The minimum value for avoiding extremely poor years is defined as zero unless a cash deficiency exists. If a cash deficiency exists, the minimum value is the interest payment associated with the deficiency, i.e., cash deficiency multiplied by the interest rate for open account loans.

The strategy decision value for each plan is calculated as returns over specified costs minus 0.674 standard deficiations in the variance of net returns (which is equivalent to a 75 percent level of probability).[7] The following equation summarizes the computations involved:

$$\text{STRAT}(K, 4) = \text{TRET} - \text{TCOST} - t_{1-\alpha}\sqrt{\text{Var}(\text{NR})} - \text{PTAX} - \text{TINS} - \sum_{i=1}^{3} \text{DEBT}(i) \times \text{RATE}(i) - \text{overhead costs} \qquad (3\text{-}1)$$

where

STRAT(K, 4) = the strategy decision value;

$t_{1-\alpha}$ = the value of t specified at the $1 - \alpha$ level of probability;

TRET = gross farm income;

TCOST = total variable costs;

PTAX = property taxes;

TINS = total insurance premium;

DEBT(i) = principal balances of (1) real estate, (2) chattel and (3) open debts; and

RATE(i) = interest rates on the (1) real estate, (2) chattel and (3) open debts.

An additional $8,000 is deducted from the strategy decision value for

each annual hired man. Annual labor is hired instead of hourly labor when total hourly labor hired becomes 2,600 hours more than the available supply.

Increase Leisure Time

The minimum satisficing value for leisure time varies according to total acres operated: (1) farms with 640 acres or less require 7 days; (2) farms with 641 to 1,279 acres require 10 days; and (3) farms with 1,280 acres or more require 14 days.[8] Thus, the minimum level can change during the 20-year planning horizon if a firm experiences appropriate increases in physical size.

The plan's total labor requirements for crop and livestock enterprises are calculated for each labor period, and this total is multiplied by 1.2 to account for general farm labor needs that are not covered by specific enterprise requirements. The labor requirement for each period is subtracted from the quantity of labor available in the corresponding labor period to estimate leisure hours available (BLEIS). If BLEIS $\leq$ 20 for a labor period, no leisure hours are allowed for that period. Unless more than two work days (20 hours) are available, it is assumed that the labor period involved will contribute nothing in terms of leisure hours. BLEIS divided by 10 hours per day equals the number of days available for leisure by labor periods, and the summation of days available constitutes the strategy decision value. Thus, the strategy decision value is based on the days of leisure time allowed by the specific plan being considered and is not a function of the last production period simulated.

Increase Net Worth

The minimum net worth level used for the satisficing value is defined as the ending net worth of the previous production period. The strategy decision value for each plan is computed as follows:

STRAT (K, 6) = TASSET + CASH - DEBT(1) - DEBT(2) - DEBT(3)

where

TASSET = value of all physical assets at start of year;

CASH = cash balance from the plan being evaluated;

DEBT(1) = principal balance of real estate loans;

DEBT(2) = principal balance of chattel loans; and

DEBT(3) = principal balance of open account loans.

Reduce Borrowing Needs

The satisficing value associated with reducing borrowing needs is actually a maximum. It is the sum of chattel and open account loans from the previous production period (includes refinancing necessary to meet a cash deficiency). Real estate borrowing is excluded from borrowing needs because of its long-term nature unless there is insufficient cash-on-hand to meet the annual payment.

The strategy decision value for reducing borrowing needs is defined as:

STRAT(K, 7) = DEBT(2) + DEBT(3) + CASHDF

where

DEBT(2) = principal balance of chattel loans;

DEBT(3) = principal balance of open account loans; and

CASHDF = cash deficiency (or cash minimum minus cash carryover).

The cash minimum is computed as follows:

CSHMIN = 0.5(TCOST - cost of stocker steers)

where

TCOST = total input cost.

If the calculated strategy decision value is less than or equal to the security value of chattel assets, the strategy decision value is set equal to zero to insure that this goal is not restrictive. Consequently, this check against the security value of chattel assets will allow the selection of a plan in which borrowing needs are greater than actual borrowing levels experienced in the last production period if the value of chattel assets is sufficient to serve as security. In contrast, if the value of chattel assets is too low to secure the size of loan needed, the amount borrowed in the last production period becomes the effective satisficing level. Plans involving acreage increases adjust the minimum cash requirements by the proportionate increase in acres.

Make the Most Annual Profits

The minimum satisficing value for making the most annual profits is zero. Consequently, a plan having negative expected returns to fixed resources is disqualified as a prospective strategy for the succeeding production period. This strategy decision value is defined as:

$$STRAT(K, 8) = TRET - TCOST - \sum_{i=1}^{3} DEBT(i) \times RATE(i) - TAKOUT$$

where

TRET = gross farm income;

TCOST = variable costs;

DEBT(i) = principal balance of real estate, chattel and open

account loans;

RATE(i) = interest rates for each type of loan; and

TAKOUT = the family consumption (see previously discussed "maintaining or increasing family living" goal for calculation).

Representative Situations and Data Specification

The purpose of the following sections is to present the basic data required by the simulation model, a description of the representative farms, and the situations to be simulated (in terms of farm size, tenure, and farm operator characteristics).

General Information

A farm survey was conducted in the summer of 1970 for the purpose of obtaining information about the study area that is not readily available from secondary sources. Information was obtained from randomly sampled farm operators concerning specific personal characteristics (e.g., age, education, and number of dependents), farm characteristics (acres of land, farm organization, crop allotments, etc.), assets, debts, and farm income. In addition, the eight goal statements discussed earlier were presented to each of the respondents in a paired-comparison framework.

Sampling Procedure

A random sample of segments was drawn from the Statistical Reporting Service's Master Sample segment maps. A segment is defined as a small

area whose boundaries are identifiable in terms of section-line roads, natural landmarks, or some other distinguishing characteristic. The final sample included 200 segments. Enumerators were instructed to contact each household located within segment boundaries and to obtain interviews with all that qualified as respondents. To qualify as a respondent, the individual must have operated a farm or ranch during the 1969 crop season, and the headquarters for his farm or ranch operation had to be located within the segment boundaries.

Summary of Sample Statistics

Of the 200 randomly selected segments, 78 had no farm or ranch headquarters located within the segment boundaries. One hundred and forty-seven completed questionnaires were obtained from the remaining 122 segments. Twenty-one of the questionnaires contained at least one nonresponse to the included questions. Out of 182 farm or ranch headquarters located in the selected sample segments, 35 absolute nonrespondents were encountered. Nine of these were classified as nonrespondents because they could not be contacted or because they had just started farming during the 1970 crop season. Of the 147 completed questionnaires, 70 of them were obtained from dryland farm operators. Data from the dryland subsample in combination with selected secondary data were used in the development or representative farm situations and in the development of starting states for the different situations to be simulated.

Enterprises and Associated Data

Much of the data used in the simulator is constant for different

situations that are to be simulated. This is especially true for input-output coefficients, standard deviations associated with crop yields, and price data. The specific data used in this study are summarized in Appendix B.

Production Data

All farm situations to be considered in this study are dryland, cash grain-livestock farms. Thus, the crop enterprises that are considered as relevant alternatives include wheat, grain sorghum, and small grain pasture produced under dryland conditions. The included livestock enterprises are representative of the predominant beef-producing systems that exist in the study area. The three specific cattle enterprises included in the simulator are (1) stockers utilizing small grain pasture until March 1, (2) stockers utilizing small grain pasture until May 1 (i.e., a graze-out small grains enterprise), and (3) a cow-calf enterprise that depends on native range as a source of forage.

The most recent enterprise budgets for the Oklahoma Panhandle available from the OSU Budget Generator[9] are relied on heavily in the development of expected yields, input levels, machinery requirements and labor requirements. Input coefficients for each enterprise are shown in Appendix B, Table XXXV. Expected output levels for each enterprise are given in Appendix B, Table XXXVI. (Expected yields are used by the simulator if the deterministic mode is specified and/or if alternative plans are being evaluated for possible implementation.)

Crop yield variation is the only stochastic element evaluated in this study. Probabilistic yields are computed within the simulator

by multiplying a specified standard deviation times a random normal deviate and adding the resulting product to the expected yield level. Thus, it is necessary to estimate a set of standard deviations that can be associated with expected production levels. Standard deviations for wheat and grain sorghum yields are estimated from county-average yield data published by the Statistical Reporting Service.[10] The standard deviations to be associated with small grain grazing yields are estimated as a function of the standard deviation of grain yield for the respective crop enterprise. Estimated standard deviations and the specified limit to the number of standard deviations for each enterprise are shown in Appendix B, Tables XXXVIII and XXXIX.

Price Assumptions

Product prices used in this study are based on 1969-71 price levels. Some adjustments are made based on data obtained from USDA,[11] and the resulting set of product prices used are approximately equivalent to the set of "adjusted normalized prices" issued by the Water Resources Council.[12] Cattle prices are seasonally adjusted average prices for the study area. Input prices are based on 1969-71 price data obtained from merchants and dealers in the study area.

A survey of seven commercial lending institutions was conducted during December, 1971. Information concerning prevailing interest rates, costs of opening and/or refinancing loans, collateral requirements, and loan limits was obtained. Interest rates, security levels, and loan charges are based on data obtained from the lending institutions in the study area.

Farm Operator Characteristics

As discussed earlier, five operator characteristics must be supplied for use in estimating the hierarchy of goals. These are (1) age of the operator, (2) years of experience, (3) educational level of the operator, (4) level of off-farm income, and (5) number of dependents. Farm survey data are used to construct the data sets needed to represent specific situations. Throughout the analysis, educational level is held constant at 12 years (a high school education), and off-farm income is assumed to be $3,500 per year (the modal level obtained in the 1970 farm survey). Years of experience and the number of dependents is varied according to the operator age profile being considered.

Representative Farm Situations

Survey data, in addition to data from the 1969 Census of Agriculture, were used to develop the representative farm situations delineated in this section. These data indicate that three primary size groups exist in the study area: (1) farms of less than 1,000 acres (60 percent of the farm numbers in 1969) that control 19 percent of the total land in farms, (2) farms having from 1,000 to 2,000 acres (23 percent of the farm numbers in 1969) that control 23 percent of the total land in farms, and (3) farms with 2,000 acres or more (17 percent of the farm numbers in 1969) that control 58 percent of the total land in farms. Respondents in the farm survey that operated strictly dryland farms are distributed within the size categories as follows: (1) less than 1,000 acres - 39 percent, (2) 1,000 to 2,000 acres - 34 percent, and (3) 2,000 acres and over - 27 percent. Based on available data

and previous research, the following three farm sizes are selected for use in this study: (1) a 960 acre farm, (2) a 1,600 acre farm, and (3) a 2,560 acre farm. Wheat allotments and feed grain bases are estimated using 1971 ASCS data reported for the study area. The computation of government program payments for the three farm sizes is included in Appendix B.

Beginning Farm Organizations

A static, single-period linear programming model was used to determine enterprises to include in the beginning organizations and the initial level of each enterprise. Input-output coefficients, prices, and available resources (e.g., land and labor) were identical with those used as simulator data. Table II summarizes land resources controlled, starting farm organizations, and other data needed either to compute the goal hierarchy or used to describe the initial financial condition of each representative farm. Optimal solutions for beginning organizations were adjusted on the small and large farm to include the cow-calf enterprise. Estimated overhead costs for each representative farm are shown in Table XL, Appendix B.

Situations to be Simulated

The 1969 census indicates the following distribution for tenure categories within the study area: (1) full owners, 29 percent; (2) part owners, 44 percent; and (3) full tenants, 27 percent. The distribution observed from the dryland portion of the random sample is: (1) full owners, 16 percent; (2) part owners, 63 percent; and (3) full tenants, 21 percent. In this study, all three tenure classifications

TABLE II

SUMMARY OF RESOURCES CONTROLLED, STARTING FARM ORGANIZATIONS, AND OTHER SELECTED DATA ASSUMED FOR REPRESENTATIVE DRYLAND SITUATIONS CHOSEN FOR SIMULATION, SOUTH CENTRAL GREAT PLAINS

Item	Unit	960 Acre Farm			1,600 Acre Farm			2,560 Acre Farm		
		Full Owner	Part Owner	Full Tenant	Full Owner	Part Owner	Full Tenant	Full Owner	Part Owner	Full Tenant
Land Resources Controlled										
Cropland owned	ac.	576	265	---	1,264	442	-----	1,050	378	-----
Cropland rented	ac.	---	311	576	-----	822	1,264	-----	672	1,050
Native pasture owned	ac.	384	177	---	336	118	-----	1,510	979	-----
Native pasture rented	ac.	---	207	384	-----	218	336	-----	531	1,510
Total land owned	ac.	960	442	---	1,600	560	-----	2,560	1,357	-----
Total land rented	ac.	---	518	960	-----	1,040	1,600	-----	1,203	2,560
Starting Farm Organization[1]										
Wheat	ac.	352	352	352	678	678	678	602	602	602
Small grain pasture	ac.	224	224	224	586	586	586	448	448	448
Native range	ac.	384	384	384	336	336	336	1,510	1,510	1,510
Stockers 4 (graze-out sm. grains)	hd.	110	110	110	210	210	210	200	200	200
Stockers 5 (on sm. grs. until Mar. 1)	hd.	---	---	---	35	35	35	-----	-----	-----
Cow-calf 1	hd.	6	6	6	---	---	---	54	54	54
Additional Starting Data										
Age	yr.	45[2]	45[2]	45[2]	45[2]	45[2]	45[2]	45[2]	45[2]	45[2]
Experience	yr.	20	20	20	20	20	20	20	20	20
Education	yr.	12	12	12	12	12	12	12	12	12
Off-farm income	dol.	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500
Dependents	no.	3	3	3	3	3	3	3	3	3
Outstanding chattel debts	dol.	4,500	4,500	4,500	6,000	6,000	6,000	6,000	6,000	6,000
Annual chattel debt payment	dol.	2,250	2,250	2,250	3,000	3,000	3,000	3,000	3,000	3,000
Length of period on chattel loan	yr.	3	3	3	3	3	3	3	3	3
Outstanding real estate debt	dol.	31,220	14,420	0	55,790	19,600	0	77,000	38,640	0
Annual real estate debt payment	dol.	4,460	2,060	0	7,970	2,800	0	11,000	5,520	0
Length of period on real estate loan	yr.	20	20	20	20	20	20	20	20	20
Outstanding open debt	dol.	0	0	0	0	0	0	0	0	0
Open debt payment	dol.	0	0	0	0	0	0	0	0	0
Length of period on open loan	yr.	1	1	1	1	1	1	1	1	1

[1] Starting farm organizations were estimated by linear programming models for each of the farm sizes.

[2] A set of 20-year simulations will be run with a starting age of 45; simulations will also be run with a starting age of 25.

will be used as a starting state for each representative farm. Other primary variables include beginning size of farm, initial levels of assets and debts, initial tenure status (or land-equity positions), age of the farm operator, and stochastic crop yields.

FOOTNOTES

[1]R. F. Hutton and H. R. Hinman, A General Agricultural Firm Simulator, Revised, Pennsylvania Agricultural Experiment Station Bulletin No. 72 (July, 1969).

[2]It should be noted that there are many facets of the added subroutines that are included for use in studying the irrigated sector of the study area. These specialized assumptions and calculations have no effect on strictly dryland situations. Thus, no attempt is made to discuss them in this dissertation. Individuals interested in applying this model to an irrigation farm situation are referred to the dissertation currently in process by Wyatte L. Harman for the same study area.

[3]For further discussion of goal selection procedures, the paired-comparison technique used, and the estimating equations used, see Wyatte L. Harman, et al., An Evaluation of Factors Affecting the Hierarchy of Multiple Goals, Oklahoma Agricultural Experiment Station Technical Bulletin T-134 (June, 1972).

[4]After the base period is simulated, the minimum cash requirement is computed for each period within the model. Minimum cash requirements are equal to one-half of the difference between variable costs (TCOST) and the total purchase cost of all stockers included in the farm organization.

[5]The consumption function used in the simulator was estimated from farm survey data collected in August, 1970. The specific form of the consumption function is as follows (with income and net worth variables coded in hundreds of dollars);

$$\begin{aligned} \text{TAKOUT} = {} & 36.3714 + 3.2575\ (\text{number of dependents}) \\ & + 0.0863\ (\text{number of dependents} \times \text{off-farm income}) \\ & + 0.0512\ (\text{total income}) - 0.0002\ (\text{total income})^2 \\ & + 0.0032\ (\text{net worth} \times \text{education}) + 0.05\ (\text{total income} - 1280), \end{aligned}$$

[6]Source of data is page 42 of the committee print of the Family Assistance Act of 1970 published by the U. S. Government Printing Office in June, 1970. A maximum payment level is specified under this program. If more than five children are included in the family,

$5,720 is the maximum payment allowed.

[7]The derivation of and computation of the variance of net returns for a plan are summarized below. It is assumed for this derivation that variable costs (VC) and the product price (P_y) are constants. The variance of net returns per acre for enterprise i is given by:

$$\text{Var } (NR)_i = P_y^2 \cdot \sigma_y^2.$$

The covariance of net returns per acre associated with enterprises i and j is given by:

$$\text{Cov } (NR)_{ij} = P_{y_i} P_{y_j} \sigma_{y_i y_j}.$$

The variance of net returns for plan k which includes n enterprises having positive variances and covariances is given by:

$$\text{Var } (NR)^k = \sum_{i=1}^{n} X_i^2 P_{y_i}^2 \sigma_{y_i}^2 + 2 \sum_{\substack{i=1 \\ i>j}}^{n} \sum_{j=1}^{m} X_i X_j P_{y_i} P_{y_j} \sigma_{y_i y_j}$$

[8]Estimates of leisure time desired by size of farm were based on farm survey data collected in August, 1970 for use in this study.

[9]For additional information see R. L. Walker and D. D. Kletke, "The Application and Use of the Oklahoma State University Crop and Livestock Budget Generator," Oklahoma State University Agricultural Experiment Station Research Report P-663 (July, 1972); R. L. Walker and D. D. Kletke, "User's Manual Oklahoma State University Crop Budget Generator," Oklahoma State University Agricultural Experiment Station Progress Report P-656 (November, 1971-Revised 10-72); and D. D. Kletke, "User's Manual Oklahoma State University Livestock Budget Generator," Oklahoma State University Agricultural Experiment Station Research Report P-661 (April, 1972).

[10]The following data sources were used to develop the estimates of standard deviations associated with dryland crop enterprises: Wallace G. Aanderud, et al., "Income Variability of Alternative Plans, Selected Farm and Ranch Situations, Rolling Plains of Northwest Oklahoma," Oklahoma Agricultural Experiment Station Bulletin B-646 (March, 1966), p. 37; Donald K. Larson and Layton S. Thompson, "Variability of Wheat Yields in the Great Plains," ERS-287 (Washington, D. C., June, 1966); and Texas Field Crop and Small Grain Statistics, Texas Statistical Reporting Service (Austin, Texas, 1971).

[11]Price adjustments were made based on data furnished by P. Leo Strickland, Jr., Regional Analyst, Farm Production Economics Division, Economic Research Service, U. S. Department of Agriculture.

[12]Interim Price Standards for Planning and Evaluating Water and Land Resources, Water Resources Council (Washington, D. C., April, 1966).

CHAPTER IV

SIMULATION RESULTS FOR SPECIFIED STARTING SITUATIONS

This chapter presents the simulation results for the eighteen situations delineated in Chapter III and summarized in Table II. Each situation is characterized by a set of assumptions with respect to beginning farm size (960, 1,600, or 2,560 acres), the starting age of the operator (either 25 or 45 years old), and the operator's initial tenure status (full owner, part owner, or full tenant). All situations are simulated for 20 years and are replicated fifteen times with each replicate having a randomly determined crop yield distribution. During the 20-year planning horizon, five decision years or evaluation points are specified. The second, sixth, tenth, fourteenth, and eighteenth years of the planning horizon are designated as decision years, i.e., a decision is made between the four strategies outlined in Chapter III based on an estimated goal hierarchy.

A word of caution is needed with regard to initial tenure status and beginning farm sizes. The initial tenure status (full owner, etc.) refers only to the tenure position of the farm operator at the beginning of the planning horizon. The terms used to describe initial tenure also reflect the operator's initial land equity position. For example, an operator identified as a full owner rents no land and has 75 percent equity in the land he operates (the remaining 25 percent is carried as

real estate debt and is paid off over time). In contrast, a full tenant rents all of the land that he operates (both cropland and pasture) and has no land equity. Thus, a full owner on a 960 acre farm starts the 20-year planning horizon with $93,580 more equity for use in financing firm growth. Initial debt levels are specified in Table II of the preceding chapter. An operator's tenure status may change as a direct result of the plan chosen in a decision year.

As is shown in Table II, farms of larger acreage are not a linear extrapolation of smaller firms. For the three farm sizes considered in this study, the ratio of cropland to rangeland is different for each beginning size. In addition, farm size increases in a given situation assume the same cropland-range ratio as specified for the respective starting farm size.

Estimates from the simulation results are reported for net farm income, consumption, and net worth. Throughout the analysis, the estimates of net farm income, as defined in the simulator (see Chapter III), represent a return to the operator's owned resources. Charges for hired labor, land rental payments, interest on borrowed capital, depreciation, and overhead costs have been deducted.

Net worth was previously identified as one measure that can be used in evaluating firm growth. In this study, increases in net worth are primarily attributable to either land purchase (which not only increases the total value of assets but also increases the earning potential of the farm) or a high enough net farm income to allow cash accumulation. Cash accumulation implies that debts are repaid at least as rapidly as specified in the input data.

In most instances, average values of solvent replicates are used as the basis of discussion. Solvent replicates are defined in succeeding sections. However, detailed summaries by replicate for net farm income, consumption, and net worth are included as appendix tables. Associated with results summarized by replicate (Appendix D) is a set of values that represents observed statistical characteristics for each year of the planning horizon. These values are the mean, standard deviation, maximum, minimum, and range of the replicates for each year of the planning horizon. The characteristics shown are estimated using only the "successful" or solvent replicates in each year (i.e., replicates that have not encountered bankruptcy). Observations associated with "bankrupt" replicates are enclosed in parentheses in all tables so that they can be quickly identified. The important point to remember is that the statistical characteristics may or may not be based on the same number of observations for each year of the planning horizon.

Occurrences of Bankruptcy

The simulator produces results for a planning horizon of specified length regardless of the financial condition of the firm being simulated at any given point in time. This characteristic makes it necessary to define the point at which a firm is no longer considered to be a viable, on-going business. A firm will be considered bankrupt the first time that a negative net worth value occurs in the planning horizon for a given replicate. In addition, once a firm encounters bankruptcy, it is considered bankrupt for the remainder of the planning horizon of that replicate.

Since only the viable or "successful" replicates are used to develop the material presented in this chapter, the occurrence of bankruptcies, in terms of frequency and situations, must be considered. Table III contains a summary of the size-age-tenure situations having replicates that encountered bankruptcy, as well as the number of replicates that were bankrupt during each year of the planning horizon. Bankrupt replicates occur in five of the eighteen situations. The situations with an initial tenure status of full tenant on both the 960 and 2,560 acre farms have replicates with negative net worth values. One situation with an initial tenure of part owner (960 acre farm, 25 year old operator) includes one replicate that encounters bankruptcy in year 18 of the planning horizon.

When one begins to analyze why certain replicates experience bankruptcy while other replicates remain solvent throughout the planning horizon, several critical factors emerge. The four most apparent factors are: (1) the distribution of crop yields drawn, (2) initial land equity position, (3) total government program payments received, and (4) starting age of the operator. These factors interact with each other and with other variables in each situation to such an extent that it is extremely difficult to isolate the total effect of an individual factor.

The distribution of crop yields drawn is critical because of its direct impact on gross farm income. This impact is reflected by net farm income which serves as the source of operating and investment capital after family consumption and taxes are deducted. Consequently, several successive years of low crop yields will likely cause debt

TABLE III

SUMMARY OF REPLICATES THAT ENCOUNTERED BANKRUPTCY DURING THE 20 YEAR PLANNING HORIZON BY INITIAL FARM SIZE, OPERATOR AGE, AND TENURE STATUS[1]

Year of Planning Horizon	Bankrupt Replicates for Initial Starting States									
	960 Acre Farm						2,560 Acre Farm			
	Part Owner		Full Tenant				Full Tenant			
	25-Year-Old Operator		25-Year-Old Operator		45-Year-Old Operator		25-Year-Old Operator		45-Year-Old Operator	
	Number	Percent[2]	Number	Percent[2]	Number	Percent[2]	Number	Percent[2]	Number	Percent[2]
1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
5	0	0.0	0	0.0	1	6.7	0	0.0	0	0.0
6	0	0.0	1	6.7	3	20.0	0	0.0	0	0.0
7	0	0.0	2	13.3	5	33.3	1	6.7	1	6.7
8	0	0.0	6	40.0	7	46.7	2	13.3	2	13.3
9	0	0.0	6	40.0	7	46.7	5	33.3	5	33.3
10	0	0.0	9	60.0	9	60.0	5	33.3	6	40.0
11	0	0.0	10	66.7	9	60.0	6	40.0	6	40.0
12	0	0.0	10	66.7	9	60.0	8	53.3	8	53.3
13	0	0.0	11	73.3	9	60.0	8	53.3	8	53.3
14	0	0.0	11	73.3	9	60.0	9	60.0	9	60.0
15	0	0.0	11	73.3	9	60.0	9	60.0	10	66.7
16	0	0.0	11	73.3	9	60.0	9	60.0	10	66.7
17	0	0.0	11	73.3	10	66.7	9	60.0	10	66.7
18	1	6.7	11	73.3	10	66.7	11	73.3	11	73.3
19	1	6.7	11	73.3	10	66.7	13	86.7	11	73.3
20	1	6.7	11	73.3	10	66.7	13	86.7	12	80.0

[1]These five situations include all of the replicates that encountered bankruptcy, i.e., had a negative net worth at some point in the planning horizon. In the remaining thirteen situations simulated, all replicates had positive net worth values throughout the planning horizon.

[2]Percentages shown are based on a total of 15 replicates simulated.

levels (and interest paid) to increase rather rapidly. Individual crop yields drawn by replicate are shown in Appendix C.

Based on the situations in which bankruptcies did occur, one can see that the initial land-equity position also exerts a definite influence. The following occurrences emphasize the importance of initial land equity: (1) no bankruptcies occurred in full owner situations, (2) only one part owner situation included a bankrupt replicate, and (3) four of the six full tenant situations show relatively high frequencies of bankruptcy (from 66.7 to 86.7 percent of the replicates) by the end of the planning horizon. These results imply that a firm having a higher initial level of land equity has a better chance of survival. Even though no bankruptcies occurred in the 1,600-acre-farm full tenant situations, it is shown later that situations with lower initial land equity do experience less increase in net worth over the 20 years simulated.

The absolute level of government payments interacting with other factors, such as net farm income, is also influential with respect to the firm's (or replicate's) ultimate financial position. Total government payments are highly correlated with the proportion of cropland on the farm and are not subject to variability from year to year. Thus, a farm with a higher proportion of cropland will receive a larger government payment and will have a higher, stable income base to absorb the impact of low crop yields whenever they occur in the planning horizon. The proportion of cropland is different for the three farm sizes simulated. Therefore, government payments received by the larger starting farm sizes are not a linear extrapolation of payments received by a smaller starting farm size. Detailed computation for

government program payments for each of the three starting farm sizes is shown in Appendix B. Assumed payments for each starting size are as follow: (1) 960-acre farms, total payment of $3,779; (2) 1,600-acre farms, total payment of $10,115; and (3) 2,560-acre farms, total payment of $7,653.

The starting age of the operator does have some effect on the survival rate based on frequencies of bankruptcy shown in Table III. In the 960-acre and 2,560 acre full tenant situations, the 45-year-old starting ages exhibit one less bankruptcy (about 7 percent) than the 25-year-old situations. As will be seen later, these results occur due to a number of factors associated with the multiple-goal, decision-making process used in this study.

Dominant Goals Versus Decision-Controlling Goals

The terms "dominant goal" and "top-ranked goal" are used as strict synonyms throughout this analysis. If a goal is identified as the dominant goal for a given situation, the immediate interpretation is that this goal is the highest-ranked goal in the hierarchy (based on estimated scale values) for that year of the planning horizon.

The "dominant goal" and the "decision-controlling goal" may or may not be the same. To fully understand this differentiation, one must recall the following: (1) only primary goals are relevant in the decision-making framework, (2) satisficing levels of all primary goals must be met for a strategy to be selected, and (3) the strategy chosen will maximize or minimize the strategy decision value for the dominant goal and will meet the satisficing requirements of all primary goals. An example may be helpful at this point. Assume the dominant goal is

to increase net worth and that the goal of reducing borrowing needs is a primary goal. If borrowing needs for the land-purchase and land-rental strategies do not meet the satisficing levels, these two strategies are eliminated from consideration. Therefore, the ultimate choice is between the no-change strategy and trading rented land for purchased land (assuming these two plans meet all necessary satisficing levels). The simulator then chooses the plan having the highest strategy decision for the goal of increasing net worth. Although the net worth goal is dominant, the reducing borrowing needs goal actually controls the ultimate strategy selection by eliminating two alternatives from consideration.

Finally, the "dominant goal" and the "decision-controlling goal" are the same if all included strategies meet the satisficing levels of all primary goals. The most important thing to remember is that a primary goal ranking relatively low in the goal hierarchy may actually control the selection between strategies.

Farms with a Starting Size of 960 Acres

Each situation discussed in this section assumes a starting farm size of 960 acres (576 acres of cropland and 384 acres of native range). All references to situations by operator age, size, or tenure are to be interpreted strictly as situation names that reflect starting states or initial positions. The discussion of results is organized as follows: (1) the dominant goal, plan chosen, and total land resources controlled by replicate are presented for the six 960-acre farm situations, (2) average net farm income, consumption, and net worth are

presented, and (3) the effects of initial tenure and operator age are discussed.

Dominant Goals and Strategies

Situations involving an initial tenure status of full owner are discussed first. Immediately following are discussions of the part owner and full tenant situations.

Full Owner, 25 Years Old. A summary of dominant goals, plans chosen, and average farm size in the specified decision years is shown for each replicate in Table IV. Only two of the eight goals (to make the most annual profit and to avoid years of low profits or losses) attain the dominant position in this situation. The goal of increasing leisure time is the sole member of the secondary group throughout the planning horizon. Therefore, all other goals are members of the primary group of goals in each decision year, and their satisficing levels must be met before a plan can be selected in any of the decision years.

In planning for year 2, the goal of making the most annual profit is dominant in all fifteen replicates and, thus, serves as the primary decision criterion in selecting one of the four plans. At this point in the planning horizon, all replicates select the strategy of renting an additional 320 acres. This action implies a change in the tenure status of the whole group from full owner to part owner, and it also represents a change in the average farm size from 960 acres to 1,280 acres.

When plans for year 6 are evaluated, the top-ranked goal is to avoid years of low profits or losses (this goal remains dominant in all replicates for the remainder of the planning horizon). Five of the

TABLE IV

SUMMARY OF DOMINANT GOALS, PLANS CHOSEN, AND LAND RESOURCES CONTROLLED IN DECISION YEARS BY REPLICATE FOR A 25 YEAR OLD FARM OPERATOR WITH A STARTING FARM SIZE OF 960 ACRES AND A BEGINNING TENURE STATUS OF A FULL OWNER

	Year 2			Year 6			Year 10			Year 14			Year 18		
Replicate	Dominant Goal[1]	Plan Chosen[2]	Farm Size	Dominant Goal[1]	Plan Chosen[2]	Farm Size	Dominant Goal[1]	Plan Chosen[2]	Farm Size	Dominant Goal[1]	Plan Chosen[2]	Farm Size	Dominant Goal[1]	Plan Chosen[2]	Farm Size
	Number	Number	Acres	Number	Number	Acres	Number	Number	Acres	Number	Number	Acres	Number	Number	Acres
1	8	2	1,280	4	2	1,600	4	2	1,920	4	3	2,240	4	2	2,560
2	8	2	1,280	4	2	1,600	4	2	1,920	4	2	2,240	4	3	2,560
3	8	2	1,280	4	2	1,600	4	2	1,920	4	2	2,240	4	3	2,560
4	8	2	1,280	4	1	1,280	4	1	1,280	4	2	1,600	4	3	1,920
5	8	2	1,280	4	2*	1,600	4	2	1,920	4	3	2,240	4	2	2,560
6	8	2	1,280	4	1*	1,280	4	1*	1,280	4	1	1,280	4	2	1,600
7	8	2	1,280	4	1*	1,280	4	1*	1,280	4	2	1,600	4	2	1,920
8	8	2	1,280	4	1*	1,280	4	1*	1,280	4	2	1,600	4	2	1,920
9	8	2	1,280	4	2	1,600	4	1*	1,600	4	2	1,920	4	2	2,240
10	8	2	1,280	4	2	1,600	4	2	1,920	4	3	2,240	4	3	2,560
11	8	2	1,280	4	1*	1,280	4	1*	1,280	4	2	1,600	4	2	1,920
12	8	2	1,280	4	2	1,600	4	2	1,920	4	2	2,240	4	3	2,560
13	8	2	1,280	4	2	1,600	4	1*	1,600	4	2	1,920	4	2	2,240
14	8	2	1,280	4	2	1,600	4	2	1,920	4	3	2,240	4	2	2,560
15	8	2	1,280	4	2	1,600	4	2	1,920	4	2	2,240	4	2	2,560
Average			1,280			1,493			1,664			1,963			2,283
Range			0			320			640			960			960

[1]Goal numbers shown are defined as follows:
Goal 4 - to avoid years of low profits or losses, and
Goal 8 - to make the most annual profit.

[2]Plan numbers are associated with the following strategies:
Plan 1 - no change in size; Plan 2 - rent an additional 320 acres; and Plan 3 - buy an additional 320 acres.

An asterisk (*) indicates Plan 1 was selected by default because the satisficing level(s) for one or more primary goals is not met by any of the plans included.

replicates select a no-change strategy, and the remaining ten replicates choose to rent more acreage. Replicates 6, 7, 8, and 11 default to the no-change plan because none of the plans meets the satisficing level (a maximum) for the goal to reduce borrowing needs. In replicate 4, the rent plan and purchase plan exceed the maximum for the goal of reducing borrowing needs and are excluded from consideration. The no-change strategy is chosen from the remaining alternatives because its strategy decision value for the dominant goal is higher. Therefore, the decisions in one-third of the replicates are actually controlled by a primary goal other than the top-ranked goal.

With the exception of replicates 9 and 13, decisions made in year 10 are the same as those observed in year 6 for each of the replicates. Replicates 9 and 13 default to the no-change plan because the satisficing level for reducing borrowing needs is exceeded by all plans (a total of six replicates employ the default option). Replicate 4 once again selects the no-change plan. In the eight replicates that choose to increase size by renting, the selection of the rental alternative is a clear choice, i.e., the strategy decision value of the dominant goal was larger for this plan, and the satisficing levels of all primary goals are met.

In year 14, only one replicate selects the no-change alternative. Borrowing needs for the two expansionary plans again exceed the satisficing level in replicate 6. All of the fourteen remaining replicates choose either to rent or buy an additional 320 acres. The choice concerning whether to rent or buy is dictated by the strategy decision value for the goal of avoiding years of low profits or losses which reflects the current financial position of the firm. The purchase

strategy is selected by four replicates, and ten replicates choose to implement the rental alternative.

All replicates choose to increase farm size in year 18, which results in an average farm size of 2,283 acres. Decisions made (in terms of renting or buying) are strictly a function of the firm's financial position. The firm's financial position is reflected in the net farm income and net worth summaries presented later in this chapter and in estimates by replicate included in Appendix D.

In summary, all replicates are solvent throughout the 20-year planning horizon, and all replicates have the tenure status of a part owner from year 2 through year 20. The ending size distribution for the fifteen replicates is as follows:

1,600 acres - - 1 replicate,

1,920 acres - - 4 replicates,

2,240 acres - - 2 replicates, and

2,560 acres - - 8 replicates.

Full Owner, 45 Years Old. A summary of dominant goals, plans chosen, and average farm size in the specified decision years is shown for each replicate in Table V. In this situation, three different goals assume the dominant position at various points in the planning horizon. These three goals are to make the most annual profit, to avoid years of low profits or losses, and to increase net worth. The goal of increasing leisure time is the only secondary goal through year 5 of the planning horizon. Thus, in selecting a strategy in years 2 and 6, the satisficing levels of all other goals must be met. In years 6 through 20, the goal of controlling more acres is the

TABLE V

SUMMARY OF DOMINANT GOALS, PLANS CHOSEN, AND LAND RESOURCES CONTROLLED IN DECISION YEARS BY REPLICATE FOR A 45 YEAR OLD FARM OPERATOR WITH A STARTING FARM SIZE OF 960 ACRES AND A BEGINNING TENURE STATUS OF A FULL OWNER

	Year 2			Year 6			Year 10			Year 14			Year 18		
Replicate	Dominant Goal[1]	Plan Chosen[2]	Farm Size	Dominant Goal[1]	Plan Chosen[2]	Farm Size	Dominant Goal[1]	Plan Chosen[2]	Farm Size	Dominant Goal[1]	Plan Chosen[2]	Farm Size	Dominant Goal[1]	Plan Chosen[2]	Farm Size
	Number	Number	Acres	Number	Number	Acres	Number	Number	Acres	Number	Number	Acres	Number	Number	Acres
1	8	2	1,280	4	2	1,600	8	2	1,920	6	1*	1,920	6	1*	1,920
2	8	2	1,280	4	2	1,600	8	2	1,920	6	1*	1,920	6	1*	1,920
3	8	2	1,280	4	2	1,600	8	2	1,920	8	1*	1,920	6	1*	1,920
4	8	2	1,280	4	1	1,280	6	1	1,280	6	1	1,280	6	4	1,280
5	8	2	1,280	4	2	1,600	6	1*	1,600	6	1*	1,600	6	1*	1,600
6	8	2	1,280	4	1*	1,280	6	1*	1,280	6	1	1,280	6	1	1,280
7	8	2	1,280	4	1*	1,280	6	1	1,280	6	1	1,280	6	1	1,280
8	8	2	1,280	4	1*	1,280	6	1*	1,280	6	1	1,280	6	1	1,280
9	8	2	1,280	4	2	1,600	8	1*	1,600	6	1*	1,600	6	1*	1,600
10	8	2	1,280	4	2	1,600	6	1*	1,600	6	1*	1,600	6	1*	1,600
11	8	2	1,280	4	1*	1,280	6	1*	1,280	6	1	1,280	6	1	1,280
12	8	2	1,280	4	2	1,600	8	2	1,920	6	2	2,240	6	1*	2,240
13	8	2	1,280	4	1*	1,280	6	1*	1,280	6	1	1,280	6	1	1,280
14	8	2	1,280	4	2	1,600	6	2	1,920	6	3	2,240	6	1*	2,240
15	8	2	1,280	4	2	1,600	8	1*	1,600	6	1*	1,600	6	1*	1,600
Average			1,280			1,472			1,579			1,621			1,621
Range			0			320			640			960			960

[1]Goal numbers shown are defined as follows:
Goal 4 - to avoid years of low profits or losses,
Goal 6 - to increase net worth, and
Goal 8 - to make the most annual profit.

[2]Plan numbers are associated with the following strategies:
Plan 1 - no change in size; Plan 2 - rent an additional 320 acres; Plan 3 - buy an additional 320 acres; and Plan 4 - release 320 acres of rented land and buy 320 acres.

An asterisk (*) indicates Plan 1 was selected by default because the satisficing level(s) for one or more primary goals is not met by any of the plans included.

sole member of the secondary group of goals, and the minimum level associated with the increasing leisure time goal must be satisfied.

Since the goal of making the most annual profit is dominant in all fifteen replicates, it is the primary decision criterion used in selecting the plan to be implemented in year 2. The strategy of renting an additional 320 acres is selected by all replicates. This decision changes the implied tenure status of all replicates from full owner to part owner, and the average farm size increases to 1,280 acres.

In planning for year 6, the dominant goal for all replicates is to avoid low profits or losses. Nine replicates choose to rent additional acreage. The remaining six replicates adopt the no-change strategy. Five of the six replicates default to the no-change plan because the satisficing level associated with the goal of reducing borrowing needs is not met by any of the plans included as alternatives. The no-change plan is actually chosen by replicate 4. However, this choice occurs only because the no-change alternative is the only plan that meets the satisficing levels for all primary goals (the other three plans do not meet the satisficing level for the goal of reducing borrowing needs).

The goal of increasing net worth is dominant in nine replicates when selecting a plan for year 10. The other six replicates have to make the most annual profit as the top-ranked goal. Five replicates elect to increase farm size by renting an additional 320 acres. Of the remaining ten replicates, eight default to the no-change strategy, and two choose to adopt the no-change alternative. The default option is exercised because one or more satisficing levels associated with primary goals are not met by any of the plans being evaluated. The

restrictive satisficing levels are associated with the goals of reducing borrowing needs (five replicates) and of increasing leisure time (three replicates). The no-change plan is actually chosen in two replicates strictly because it is the only available alternative that satisfies the requirements of all primary goals.

In planning for year 14, the goal of increasing net worth is dominant in fourteen replicates; the top-ranked goal for the remaining replicate is to make the most annual profit. Only two replicates select an expansionary strategy (replicate 12 rents land and replicate 14 buys land). Seven replicates default to the no-change strategy, and six replicates actually select the no-change plan. The restrictive satisficing level that activates the default option is associated with the goal of increasing leisure time. This same satisficing requirement eliminates the rental and purchase strategies from consideration in five replicates because the specified minimum is not met. However, with the exception of replicate 6, the remaining replicates do have two strategies from which a choice is to be made (the no-change plan and trading rented for owned acreage). In replicate 6, the satisficing level for reducing borrowing needs is not met by the purchase alternative or the trade strategy, and the rental strategy does not meet the satisficing level for increasing leisure time. The no-change strategy does meet all satisficing requirements for replicate 6. Thus, it is selected as the appropriate strategy to follow.

To increase net worth is the top-ranked goal in all fifteen replicates when plans for year 18 are evaluated. One replicate elects to implement the trade strategy (replace 320 acres of rented land by buying 320 acres). Nine replicates default to the no-change

alternative because none of the included plans satisfy the minimum value specified for the goal of increasing leisure time. In three of the five replicates that actually choose the no-change plan, all other plans are eliminated from consideration because one or more satisficing levels for primary goals are not met. The two remaining replicates have a choice between the no-change plan and the trade strategy. The strategy decision value associated with the goal of increasing net worth is higher for the no-change alternative in both replicates. Thus, it is selected. Since none of the replicates chose an expansionary strategy in this decision year, average farm size remains at 1,621 acres with replicates varying in size from 1,280 to 2,240 acres.

Part Owner, 25 Years Old. Table VI summarizes the dominant goals, plans chosen, and farm size by replicate for this situation. Three different goals assume the dominant role in one or more replicates at some point in the planning horizon. These goals are to avoid years of low profits or losses, to increase net worth, and to make the most annual profit. The goal of making the most annual profit is dominant for all replicates when plans are being evaluated for year 2, and the goal of increasing net worth is dominant for all replicates when plans are evaluated for year 14. In years 10 and 18, each of the three goals is dominant in at least one replicate. The initial tenure status of the farm operator (i.e., part owner) remains unchanged throughout the planning horizon for all replicates. Increasing leisure time is the sole member of the secondary group of goals in all replicates throughout the planning horizon.

Using the goal of making the most annual profit as the primary decision criterion, all replicates employ the strategy of renting an

TABLE VI

SUMMARY OF DOMINANT GOALS, PLANS CHOSEN, AND LAND RESOURCES CONTROLLED IN DECISION YEARS BY REPLICATE FOR A 25 YEAR OLD FARM OPERATOR WITH A STARTING FARM SIZE OF 960 ACRES AND A BEGINNING TENURE STATUS OF A PART OWNER

	Year 2			Year 6			Year 10			Year 14			Year 18		
Replicate	Dominant Goal[1]	Plan Chosen[2]	Farm Size	Dominant Goal[1]	Plan Chosen[2]	Farm Size	Dominant Goal[1]	Plan Chosen[2]	Farm Size	Dominant Goal[1]	Plan Chosen[2]	Farm Size	Dominant Goal[1]	Plan Chosen[2]	Farm Size[3]
	Number	Number	Acres	Number	Number	Acres	Number	Number	Acres	Number	Number	Acres	Number	Number	Acres
1	8	2	1,280	6	1	1,280	4	1*	1,280	6	2	1,600	8	2	1,920
2	8	2	1,280	6	1	1,280	8	1*	1,280	6	2	1,600	8	2	1,920
3	8	2	1,280	6	2	1,600	8	1*	1,600	6	2	1,920	6	2	2,240
4	8	2	1,280	6	1*	1,280	4	1*	1,280	6	2	1,600	8	2	1,920
5	8	2	1,280	6	2	1,600	8	2	1,920	6	3	2,240	4	2	2,560
6	8	2	1,280	8	1*	1,280	8	1*	1,280	6	1*	1,280	8	1*	1,280
7	8	2	1,280	6	1*	1,280	8	1*	1,280	6	2	1,600	8	1*	1,600
8	8	2	1,280	8	1*	1,280	8	1*	1,280	6	1	1,280	4	1*	(1,280)
9	8	2	1,280	6	2	1,600	8	1*	1,600	6	2	1,920	8	1	1,920
10	8	2	1,280	6	2	1,600	6	2	1,920	6	3	2,240	4	2	2,560
11	8	2	1,280	8	1*	1,280	8	1*	1,280	6	2	1,600	8	1*	1,600
12	8	2	1,280	6	2	1,600	8	1*	1,600	6	2	1,920	6	2	2,240
13	8	2	1,280	8	2	1,600	8	1*	1,600	6	2	1,920	8	1*	1,920
14	8	2	1,280	6	2	1,600	6	2	1,920	6	2	2,240	6	2	2,560
15	8	2	1,280	6	2	1,600	8	2	1,920	6	1	1,920	8	1*	1,920
Average			1,280			1,451			1,536			1,792			2,011
Range			0			320			640			960			1,280

[1]Goal numbers shown are defined as follows:
Goal 4 - to avoid years of low profits or losses,
Goal 6 - to increase net worth, and
Goal 8 - to make the most annual profit.

[2]Plan numbers are associated with the following strategies:
Plan 1 - no change in size; Plan 2 - rent an additional 320 acres; and Plan 3 - buy an additional 320 acres.
An asterisk (*) indicates Plan 1 was selected by default because the satisficing level(s) for one or more primary goals is not met by any of the plans included.

[3]Observations enclosed in parentheses are associated with firms that have encountered bankruptcy, and they are not used in computing average size. Thus, average size refers to the average size of viable firms.

additional 320 acres in year 2. Thus, average farm size increased to 1,280 acres.

Eight replicates elect to rent additional acreage when plans are evaluated for year 6. Of the remaining seven replicates, five default to the no-change alternative because none of the plans considered can meet the satisficing level for the goal of reducing borrowing needs. Two of the replicates choose the no-change plan because it is the only one included that meets the satisficing levels of all primary goals.

In year 10, four replicates choose to increase farm size by renting an additional 320 acres. The other eleven replicates exercise the default option and adopt the no-change strategy because none of the available alternative plans can meet the satisficing level associated with the goal of reducing borrowing needs. Average farm size increases to 1,536 acres.

Only three replicates adopt the no-change strategy in year 14. This plan is chosen because the satisficing level for reducing borrowing needs is not met by the other included plans. Of the remaining twelve replicates, ten rent additional land, and two elect to purchase 320 acres. The decision to increase farm size made by the twelve replicates results in the average size of farm increasing to 1,792 acres.

The eight replicates that choose to increase farm size in year 18 select the rental alternative as the plan to implement. The remaining seven replicates adopt the no-change strategy (six replicates by default and one replicate by choice). The satisficing level associated with reducing borrowing needs is once again the effective constraint that forces adoption of the no-change plan. Average farm size, based on decisions made in year 18, increases to 2,011 acres with farm size

for individual replicates ranging from 1,280 to 2,560 acres.

Part Owner, 45 Years Old. Only two goals are dominant in this situation (Table VII). Avoiding years of low profits or losses is the top-ranked goal in all replicates when plans are being evaluated for year 2. The goal of making the most annual profit is dominant in all replicates for each of the four remaining decision years. The goal of increasing leisure time is a secondary goal in all replicates through year 13 of the planning horizon. However, in planning for year 14, the leisure time goal moves into the primary group in thirteen replicates, and it retains the status of a primary goal in year 18 for eleven replicates. When increasing leisure time becomes a primary goal, controlling more acres is usually the only member of the secondary group.

With the goal of avoiding years of low profits of losses serving as the primary decision criterion, all fifteen replicates elect to increase farm size by renting an additional 320 acres in year 2. Thus, average farm size increases to 1,280 acres.

In planning for year 6, eight replicates again choose to increase farm size by implementing the rental alternative. The remaining seven replicates elect to follow the no-change strategy. In five of these replicates, the default option is exercised because none of the included plans meet the satisficing level associated with reducing borrowing needs. This same satisficing level eliminates from consideration all plans except the no-change plan for the remaining two replicates. Average farm size does increase to 1,451 acres in this decision year.

TABLE VII

SUMMARY OF DOMINANT GOALS, PLANS CHOSEN, AND LAND RESOURCES CONTROLLED IN DECISION YEARS BY REPLICATE FOR A 45 YEAR OLD FARM OPERATOR WITH A STARTING FARM SIZE OF 960 ACRES AND A BEGINNING TENURE STATUS OF A PART OWNER

	Year 2			Year 6			Year 10			Year 14			Year 18		
Replicate	Dominant Goal[1]	Plan Chosen[2]	Farm Size	Dominant Goal[1]	Plan Chosen[2]	Farm Size	Dominant Goal[1]	Plan Chosen[2]	Farm Size	Dominant Goal[1]	Plan Chosen[2]	Farm Size	Dominant Goal[1]	Plan Chosen[2]	Farm Size
	Number	Number	Acres	Number	Number	Acres	Number	Number	Acres	Number	Number	Acres	Number	Number	Acres
1	4	2	1,280	8	2	1,600	8	1	1,600	8	1*	1,600	8	1*	1,600
2	4	2	1,280	8	1	1,280	8	1	1,280	8	1	1,280	8	1	1,280
3	4	2	1,280	8	2	1,600	8	1*	1,600	8	1*	1,600	8	1*	1,600
4	4	2	1,280	8	1	1,280	8	1*	1,280	8	1	1,280	8	1	1,280
5	4	2	1,280	8	2	1,600	8	2	1,920	8	3	2,240	8	2	2,560
6	4	2	1,280	8	1*	1,280	8	1*	1,280	8	1*	1,280	8	1*	1,280
7	4	2	1,280	8	1*	1,280	8	1*	1,280	8	1	1,280	8	1*	1,280
8	4	2	1,280	8	1*	1,280	8	1*	1,280	8	1	1,280	8	1*	1,280
9	4	2	1,280	8	2	1,600	8	1*	1,600	8	1*	1,600	8	1*	1,600
10	4	2	1,280	8	2	1,600	8	2	1,920	8	1*	1,920	8	1*	1,920
11	4	2	1,280	8	1*	1,280	8	1*	1,280	8	1	1,280	8	1*	1,280
12	4	2	1,280	8	2	1,600	8	1*	1,600	8	1*	1,600	8	1*	1,600
13	4	2	1,280	8	1*	1,280	8	1*	1,280	8	1	1,280	8	1*	1,280
14	4	2	1,280	8	2	1,600	8	2	1,920	8	3	2,240	8	2	2,560
15	4	2	1,280	8	2	1,600	8	2	1,920	8	1*	1,920	8	1*	1,920
Average			1,280			1,451			1,536			1,579			1,621
Range			0			320			640			960			1,280

[1]Goal numbers shown are defined as follows:
Goal 4 - to avoid years of low profits or losses, and
Goal 8 - to make the most annual profits.

[2]Plan numbers are associated with the following strategies:
Plan 1 - no change in size; Plan 2 - rent an additional 320 acres; and Plan 3 - buy an additional 320 acres.
An asterisk (*) indicates Plan 1 was selected by default because the satisficing level(s) for one or more primary goals is not met by any of the plans included.

Four replicates choose the strategy of renting another 320 acres in year 10. The remaining eleven replicates adopt the no-change plan (9 by default; 2 by choice). The satisficing level that activates the default option in all cases is associated with reducing borrowing needs. This same satisficing level excludes all plans except the no-change alternative for the other two replicates. Expansion by four replicates causes an increase in average farm size to 1,536 acres.

Only two replicates elect to expand farm size in year 14; both select the strategy of purchasing 320 acres. The other thirteen replicates implement the no-change strategy. The satisficing level associated with increasing leisure time becomes the most effective constraint in this decision year. In seven replicates, all plans fail to meet the leisure time satisficing levels. Therefore, these replicates default to the no-change strategy. In replicates that actually choose the no-change plan, the rental and purchase strategies do not meet the leisure time satisficing level and are excluded from consideration in the selection process.

In year 18, two replicates rent an additional 320 acres, and thirteen replicates adopt the no-change strategy. The inability of any included plan to meet the satisficing level for either the goal of increasing leisure time or the goal of reducing borrowing needs activates the default option in ten replicates. In replicates 2 and 4, both expansionary plans (rent and purchase alternatives) are eliminated as relevant alternatives because they do not meet the satisficing level for the goal of increasing leisure time. Average farm size increases to 1,621 acres in this decision year.

Full Tenant, 25 Years Old. A summary of dominant goals, plans chosen, and farm size is shown for each replicate in Table VIII. The goal of making the most annual profit is dominant in all replicates when plans are evaluated for year 2. One replicate encounters bankruptcy in year 6. The number of bankrupt replicates increases from nine in year 10 to eleven in year 18 (four replicates are solvent in year 18). From year 6 through the remainder of planning horizon, the financial condition of the firm causes some variation with respect to the top-ranked goal. This observed variation is primarily attributable to changes in the absolute values of cash-flow variables included in the equations used to estimate scale values for goals. The goals of increasing net worth and of making the most annual profit are the only goals that ever assume the dominant position.

In year 2, all replicates increase farm size by renting an additional 320 acres. Thus, average farm size increases to 1,280 acres.

Seven replicates elect to follow the rental strategy in year 6. Remaining replicates (one of which is bankrupt) either default to or choose the no-change alternative (four solvent replicates default to this strategy). In all eight replicates that adopt the no-change plan, this decision is forced because the satisficing level associated with the goal of reducing borrowing needs is not met.

Year 10 of the planning horizon includes nine replicates that are bankrupt. Of the six solvent replicates, three choose to increase farm size by renting additional acreage. The other three solvent replicates (as well as the bankrupt replicates) default to the no-change plan because borrowing needs exceed the maximum specified by the goal of reducing borrowing needs.

TABLE VIII

SUMMARY OF DOMINANT GOALS, PLANS CHOSEN, AND LAND RESOURCES CONTROLLED IN DECISION YEARS BY REPLICATE FOR A 25 YEAR OLD FARM OPERATOR WITH A STARTING FARM SIZE OF 960 ACRES AND A BEGINNING TENURE STATUS OF A FULL TENANT

	Year 2			Year 6			Year 10			Year 14			Year 18		
Replicate	Dominant Goal[1]	Plan Chosen[2]	Farm Size	Dominant Goal[1]	Plan Chosen[2]	Farm Size[3]	Dominant Goal[1]	Plan Chosen[2]	Farm Size[3]	Dominant Goal[1]	Plan Chosen[2]	Farm Size[3]	Dominant Goal[1]	Plan Chosen[2]	Farm Size[3]
	Number	Number	Acres	Number	Number	Acres	Number	Number	Acres	Number	Number	Acres	Number	Number	Acres
1	8	2	1,280	8	1	1,280	8	1*	(1,280)	8	1	(1,280)	6	1*	(1,280)
2	8	2	1,280	8	1	1,280	8	1*	(1,280)	8	1	(1,280)	6	1*	(1,280)
3	8	2	1,280	8	2	1,600	8	1*	1,600	8	2	(1,920)	8	1*	(1,920)
4	8	2	1,280	8	1*	1,280	8	1*	1,280	8	2	(1,600)	8	1*	(1,600)
5	8	2	1,280	8	2	1,600	8	2	1,920	6	2	2,240	6	2	2,560
6	8	2	1,280	8	1*	1,280	6	1*	(1,280)	8	1*	(1,280)	6	1*	(1,280)
7	8	2	1,280	8	1*	(1,280)	6	1*	(1,280)	8	1*	(1,280)	6	1*	(1,280)
8	8	2	1,280	8	1*	1,280	6	1*	(1,280)	8	1*	(1,280)	6	1*	(1,280)
9	8	2	1,280	8	2	1,600	6	1*	(1,600)	8	1*	(1,600)	6	1*	(1,600)
10	8	2	1,280	6	2	1,600	8	2	1,920	6	2	2,240	6	3	2,560
11	8	2	1,280	8	1*	1,280	6	1*	(1,280)	8	1*	(1,280)	6	1*	(1,280)
12	8	2	1,280	8	2	1,600	8	1*	1,600	6	2	1,920	8	1	1,920
13	8	2	1,280	8	2	1,600	6	1*	(1,600)	6	1	(1,600)	6	1*	(1,600)
14	8	2	1,280	8	2	1,600	8	2	1,920	6	2	2,240	8	2	2,560
15	8	2	1,280	8	1	1,280	8	1*	(1,280)	8	1*	(1,280)	6	1*	(1,280)
Average			1,280			1,440			1,707			2,160			2,400
Range			0			320			640			320			640

[1]Goal numbers shown are defined as follows:
Goal 6 - to increase net worth, and
Goal 8 - to make the most annual profit.

[2]Plan numbers are associated with the following strategies:
Plan 1 - no change in size; Plan 2 - rent an additional 320 acres; and Plan 3 - buy an additional 320 acres.
An asterisk (*) indicates Plan 1 was selected by default because the satisficing level(s) for one or more primary goals is not met by any of the plans included.

[3]Observations enclosed in parentheses are associated with firms that have encountered bankruptcy, and they are not used in computing average size. Thus, average size refers to the average size of viable firms.

Eleven replicates in year 14 are bankrupt. Two of the solvent replicates employ the rental strategy, and two default to the no-change alternative because the satisficing level for reducing borrowing needs is not met by any of the included plans. Average farm size for the solvent replicates is now 2,160 acres.

In year 18, there are still four solvent replicates. The decisions made are: (1) two replicates rent, (2) one replicate buys more land, and (3) one replicate chooses the no-change plan because it is the only plan that meets the satisficing levels for all primary goals. This set of decisions results in an average farm size of 2,400 acres for solvent replicates.

Full Tenant, 45 Years Old. Two goals are dominant in this situation (Table IX). To make the most annual profit is the top-ranked goal for all solvent replicates in each of the five decision years. The goal of increasing net worth and the goal of making the most annual profit share the dominant role in the replicates that have encountered bankruptcy.

In year 2, all fifteen replicates are solvent and choose to increase farm size by renting an additional 320 acres. Consequently, average farm size increases to 1,280 acres.

Three replicates are bankrupt when plans are evaluated for year 6. Of the twelve solvent replicates, six select the rental option. The remaining six replicates adopt the no-change strategy (3 by default and 3 by choice). The no-change strategy is chosen since this is the only included plan that meets the satisficing level for the goal of reducing borrowing needs in the replicates where choice is indicated. Choice, in this case, simply means that the default option was not

TABLE IX

SUMMARY OF DOMINANT GOALS, PLANS CHOSEN, AND LAND RESOURCES CONTROLLED IN DECISION YEARS BY REPLICATE FOR A 45 YEAR OLD FARM OPERATOR WITH A STARTING FARM SIZE OF 960 ACRES AND A BEGINNING TENURE STATUS OF A FULL TENANT

	Year 2			Year 6			Year 10			Year 14			Year 18		
Replicate	Dominant Goal[1]	Plan Chosen[2]	Farm Size	Dominant Goal[1]	Plan Chosen[2]	Farm Size[3]	Dominant Goal[1]	Plan Chosen[2]	Farm Size[3]	Dominant Goal[1]	Plan Chosen[2]	Farm Size[3]	Dominant Goal[1]	Plan Chosen[2]	Farm Size[3]
	Number	Number	Acres	Number	Number	Acres	Number	Number	Acres	Number	Number	Acres	Number	Number	Acres
1	8	2	1,280	8	1	1,280	8	1*	1,280	8	1	1,280	8	1*	(1,280)
2	8	2	1,280	8	1	1,280	8	1*	(1,280)	8	1	(1,280)	6	1*	(1,280)
3	8	2	1,280	8	2*	1,600	8	1*	1,600	8	1*	1,600	8	3	1,920
4	8	2	1,280	8	1	1,280	8	1*	(1,280)	8	1	(1,280)	8	1*	(1,280)
5	8	2	1,280	8	2*	1,600	8	3	1,920	8	2*	2,240	8	2	2,560
6	8	2	1,280	6	1*	(1,280)	6	1*	(1,280)	8	1*	(1,280)	8	1*	(1,280)
7	8	2	1,280	8	1*	(1,280)	6	1*	(1,280)	8	1*	(1,280)	6	1*	(1,280)
8	8	2	1,280	8	1*	(1,280)	6	1*	(1,280)	8	1*	(1,280)	8	1*	(1,280)
9	8	2	1,280	8	2	1,600	6	1*	(1,600)	8	1*	(1,600)	6	1*	(1,600)
10	8	2	1,280	8	2	1,600	8	3	1,920	8	3	2,240	8	2	2,560
11	8	2	1,280	8	1*	1,280	6	1*	(1,280)	8	1	(1,280)	6	1*	(1,280)
12	8	2	1,280	8	2	1,600	8	1*	1,600	8	1*	1,600	8	2	1,920
13	8	2	1,280	8	1*	1,280	6	1*	(1,280)	8	1*	(1,280)	8	1*	(1,280)
14	8	2	1,280	8	2	1,600	8	2	1,920	8	3	2,240	8	2	2,560
15	8	2	1,280	8	1	1,280	8	1*	(1,280)	8	1*	(1,280)	8	1*	(1,280)
Average			1,280			1,440			1,707			1,867			2,304
Range			0			320			640			960			640

[1]Goal numbers shown are defined as follows:
Goal 6 - to increase net worth, and
Goal 8 - to make the most annual profit.

[2]Plan numbers are associated with the following strategies:
Plan 1 - no change in size; Plan 2 - rent an additional 320 acres; and Plan 3 - buy an additional 320 acres.
An asterisk (*) indicates Plan 1 was selected by default because the satisficing level(s) for one or more primary goals is not met by any of the plans included.

[3]Observations enclosed in parentheses are associated with firms that have encountered bankruptcy, and they are not used in computing average size. Thus, average size refers to the average size of viable firms.

activated. In replicates that exercise the default option, none of the available plans meet the satisficing level for reducing borrowing needs. The average size of solvent replicates after plans are selected in year 6 is 1,440 acres.

In year 10 of the planning horizon, six replicates are solvent (i.e., nine replicates are bankrupt). Three of the solvent replicates choose to increase farm size (two purchase land and one rents). The remaining three replicates default to the no-change strategy because borrowing needs are too great in all of the included alternatives. The average size of solvent replicates increases to 1,707 acres with individual replicates varying in size from 1,280 to 1,920 acres.

There are still six solvent replicates when plans are evaluated for year 14. Once again, two replicates select the land purchase alternative, and one replicate rents an additional 320 acres. Of the three replicates that adopt the no-change alternative, the default option is activated in two of them because satisficing levels are not met for reducing borrowing needs or for increasing leisure time. The no-change alternative is the only plan that can meet the satisficing requirements for these two goals in replicate 1; thus, it is selected as the alternative to employ. The expansion by three replicates results in an average farm size of 1,867 acres.

Only one additional replicate encounters bankruptcy before year 18. Therefore, there are five solvent replicates in this decision year. All five of these replicates select one of the expansionary plans (one buys and four rent). Consequently the average size of the solvent replicates increases to 2,304 acres.

Comparison of Initial Age and Tenure Situations

Six different situations are delineated in the 960-acre farm category, and each situation is replicated fifteen times. Estimates of net farm income, consumption, and net worth over the 20-year planning horizon are summarized by replicate in Appendix D, Tables XLVII through LXIV. These summary tables also include estimates of the mean, standard deviation, maximum, minimum, and range for solvent (non-bankrupt) replicates during each year of the planning horizon.

Average values used in the following discussion are computed two different ways for situations in which one or more replicates encounter bankruptcy at some point in the planning horizon. The first approach (designated by an "A" column heading) is to calculate an average value using observations for all replicates that have not yet encountered bankruptcy. Thus, the number of observations used to compute the average may vary from year to year within a situation. The second approach (designated by a "B" column heading) is to use observations from replicates that remain solvent for the entire 20-year planning horizon to calculate the average value. This approach eliminates effects in early years that are directly attributable to replicates that encounter bankruptcy, and it does provide an estimate of average values associated with "successful" replicates. For a given size-age-tenure situation, all averages are based on the same number of observations across years of the planning horizon. However, the number of observations is not necessarily the same as one moves from one situation to another because the number of replicates that encounter bankruptcy is not the same in each situation. Average values for

situations with no bankrupt replicates (or for individual years in a given situation with no bankrupt replicates if approach A is used) are computed using the observations for all fifteen replicates. All averages (means) shown in the appendix tables are computed using the first method (A) discussed above.

Net Farm Income. The average net farm income estimates for each of the six situations having an initial farm size of 960 acres are shown for each year of the planning horizon in Table X. The initial discussion deals only with average values computed using observations from all solvent replicates each year (column headings of "A" for situations with bankruptcies). Since net farm income is the return to owned resources, the differences observed in a given year between tenure categories are largely explained by land rental charges and interest charges. For example, a full tenant is paying land rent for every acre operated. Whereas, a full owner incurs no charge for using the land other than property taxes (assuming he has no existing real estate debt) since the simulator does not include a feature that charges an "opportunity cost" for using owned capital. Consequently, the average net farm income estimates shown for an operator having an initial tenure status of a full owner are consistently higher than for operators with an initial tenure status of part owner or full tenant.

If farm size in a given year is the same for a part owner and a full tenant, the net farm income associated with the part owner situation will be higher. This particular relationship holds for the six situations having an initial size of 960 acres through year 9 of the planning horizon. In year 10, average farm size in the full

TABLE X

AVERAGE NET FARM INCOME OF SOLVENT FIRMS OVER A 20-YEAR PLANNING HORIZON, BEGINNING FARM SIZE OF 960 ACRES, SPECIFIED INITIAL OPERATOR AGE AND TENURE SITUATIONS, SOUTH CENTRAL GREAT PLAINS

Year	25-Year-Old Operator					45-Year-Old Operator			
	Full Owner[1]	Part Owner A[2]	Part Owner B[3]	Full Tenant A[2]	Full Tenant B[4]	Full Owner[1]	Part Owner[1]	Full Tenant A[2]	Full Tenant B[5]
	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
1	880	- 1,136	- 1,465	- 2,848	529	927	- 1,136	- 2,848	- 887
2	6,003	3,719	3,971	1,777	2,930	6,009	3,724	1,780	3,725
3	4,916	2,508	2,720	453	3,254	4,848	2,427	366	2,392
4	7,449	4,875	5,109	2,696	4,900	7,300	4,744	2,557	6,026
5	9,566	8,080	8,844	5,777	7,682	10,590	7,898	6,034	7,181
6	10,984	7,722	8,001	5,497	12,351	10,781	7,674	5,429	10,639
7	8,116	4,363	4,994	2,699	6,261	7,336	4,225	3,122	3,922
8	8,475	4,810	4,722	4,819	2,424	8,380	4,968	4,275	3,645
9	10,338	6,453	6,508	6,175	10,318	10,280	6,629	6,024	8,123
10	8,297	4,227	4,934	6,200	6,761	7,965	4,408	4,816	6,035
11	11,690	6,576	6,824	10,286	10,845	11,301	6,937	9,824	10,046
12	11,348	6,099	7,224	7,891	10,174	10,992	6,562	8,346	7,709
13	11,745	6,649	6,709	11,773	11,773	11,397	7,014	7,422	8,456
14	14,647	9,272	9,254	9,678	9,678	12,751	7,890	7,408	7,543
15	15,116	9,445	9,914	6,774	6,774	12,997	8,373	8,384	9,157
16	15,967	9,960	10,925	12,170	12,170	13,843	8,578	8,664	10,529
17	14,372	8,159	8,435	11,612	11,612	12,624	7,213	9,522	9,522
18	19,236	13,330	13,330	16,039	16,039	14,471	9,825	12,490	12,490
19	14,195	6,979	6,979	10,053	10,053	10,469	5,904	6,283	6,283
20	18,583	11,345	11,345	11,538	11,538	13,925	8,523	11,174	11,174

[1]All averages are based on fifteen replicates since no bankruptcies occur during the 20-year planning horizon.

[2]Averages in this column are based on the number of solvent replicates in each year. Therefore, the number of observations may vary from year to year.

[3]Averages in this column are all based on fourteen replicates that remain solvent over the entire 20-year planning horizon.

[4]Averages in this column are all based on four replicates that remain solvent over the entire 20-year planning horizon.

[5]Averages in this column are all based on five replicates that remain solvent over the entire 20-year planning horizon.

tenant situations becomes greater than average farm size in the part owner situations. Thus, average net farm income is generally higher in the full tenant situation than in the part owner situation. This relationship does not hold in some instances because the number of solvent replicates differs between tenure situations.

Average net farm incomes calculated using observations from replicates that are solvent throughout the planning horizon (column headings labeled "B") are higher than the average net farm incomes based on all solvent replicates that have not yet encountered bankruptcy. This is especially critical early in the planning horizon in order for the operator to retire existing debts and attain a financial position that allows him to survive years of low crop yields. The higher net farm incomes for replicates that survive throughout the planning horizon also imply that these replicates experienced fewer occurrences of low crop yields than replicates that eventually went bankrupt. The sequence of high and low yields is also a critical variable with regard to survival capability.

Consumption. Changes throughout the planning horizon in the values of three major variables in the consumption function influence family consumption levels within the simulator. These variables are the number of dependents, total income (farm and off-farm), and the net worth of the firm at the end of the previous production period. With the exception of year 1 (for which consumption is specified as data), annual consumption is estimated by a specified function. Total income reflects yield variability and farm size differences, at least in an indirect manner. The net worth value used includes cash accumulation resulting from years of good crop yields. For a 25-year-old farm

operator, the number of dependents increases in years 3 and 5. The number of dependents decreases in years 5 and 7 for the 45-year-old farm operator.

Average consumption levels for solvent replicates over the 20-year planning horizon are summarized in Table XI. Consumption of $6,000 was specified as data for year 1 in all six situations. With the exception of years in which the number of dependents changes, the year-to-year fluctuations observed in average consumption levels within each of the six age-tenure situations are the direct result of crop yield variability being reflected through the total income variable. In the three situations having an initial operator age of 25 years, consumption increases sharply up to year 5 (in which the maximum number of dependents occurs) and then shows a general upward trend for the remainder of the planning horizon. Situations having an initial operator age of 45 years experience a relatively sharp decline in consumption up to year 7. In year 7, the number of dependents decreases to 1. At this point, the full owner and part owner situations tend to level off. However, the full tenant situation shows a general upward trend from year 8 to year 20. In this situation, average farm size for solvent replicates increases in each decision year. Total income increases as farm size increases, thus causing consumption to increase. Variation in consumption levels in a given year between tenure situations with one operator-age category are primarily attributable to differences in farm size that occur as a result of decisions made by individual replicates. Averages calculated using the different approaches (A and B) described earlier do not vary greatly in any of the situations.

TABLE XI

AVERAGE CONSUMPTION LEVELS FOR SOLVENT FIRMS OVER A 20-YEAR PLANNING HORIZON, BEGINNING FARM SIZE OF 960 ACRES, SPECIFIED INITIAL OPERATOR AGE AND TENURE SITUATIONS, SOUTH CENTRAL GREAT PLAINS

Year	25-Year-Old Operator					45-Year-Old Operator			
	Full Owner[1]	Part Owner A[2]	Part Owner B[3]	Full Tenant A[2]	Full Tenant B[4]	Full Owner[1]	Part Owner[1]	Full Tenant A[2]	Full Tenant B[5]
	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
1	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000
2	6,630	6,610	6,640	6,593	6,816	7,886	7,866	7,849	8,036
3	7,182	7,161	7,195	7,143	7,317	7,809	7,788	7,771	7,827
4	7,407	7,385	7,422	7,367	7,282	8,034	8,012	7,994	8,013
5	8,152	8,129	8,184	8,110	8,228	7,456	7,500	7,508	7,529
6	8,205	8,142	8,147	8,111	8,710	7,556	7,516	7,473	7,963
7	8,102	8,035	8,078	8,077	8,478	6,824	6,780	6,855	7,129
8	8,082	8,018	7,993	8,141	7,889	6,808	6,767	6,834	6,799
9	8,325	8,256	8,242	8,311	8,498	7,089	6,999	7,008	7,209
10	8,188	8,058	8,108	8,340	8,328	6,855	6,803	6,984	7,107
11	8,439	8,311	8,308	8,699	8,786	7,125	7,056	7,376	7,444
12	8,309	8,199	8,287	8,560	8,578	6,994	6,942	7,279	7,306
13	8,347	8,205	8,213	8,720	8,720	7,024	6,957	7,127	7,226
14	8,562	8,355	8,411	8,789	8,789	6,998	6,869	7,270	7,355
15	8,715	8,475	8,488	8,628	8,628	7,059	7,005	7,305	7,348
16	8,739	8,524	8,593	9,053	9,053	7,113	7,043	7,424	7,626
17	8,682	8,485	8,508	8,829	8,829	7,145	7,068	7,501	7,501
18	8,923	8,680	8,680	8,931	8,931	7,112	7,006	7,537	7,537
19	8,874	8,623	8,623	9,402	9,402	6,997	7,017	7,820	7,820
20	9,058	8,731	8,731	9,097	9,097	7,073	7,014	7,784	7,784

[1]All averages are based on fifteen replicates since no bankruptcies occur during the 20-year planning horizon.

[2]Averages in this column are based on the number of solvent replicates in each year. Therefore, the number of observations may vary from year to year.

[3]Averages in this column are all based on fourteen replicates that remain solvent over the entire 20-year planning horizon.

[4]Averages in this column are all based on four replicates that remain solvent over the entire 20-year planning horizon.

[5]Averages in this column are all based on five replicates that remain solvent over the entire 20-year planning horizon.

Net Worth. Average net worth estimates for the six 960-acre farm situations are summarized in Table XII. In the first situation (25-year-old full owner), average net worth increases continually throughout the 20-year planning horizon. This is the only situation in which continual increases occur. Average net worth across replicates in the 45-year-old full owner situation decreases in year 3 but increases continually throughout the remainder of the planning horizon. The primary reason for this decrease is that several replicates encounter low crop yields. This is reflected in net farm income estimates (Table L) and net worth estimates (Table LII) for each replicate. Low net farm incomes necessitate using accumulated cash which in turn reduces net worth for the affected replicates.

All fifteen replicates in the 45-year-old part owner situation remain solvent throughout the 20-year planning horizon. Average net worth fluctuates around the initial level in years 1 through 8. However, the initial net worth level is surpassed in year 9. From year 10 to year 20, average net worth gradually increases until the ending level of $90,690 is reached.

One replicate in the 25-year-old part owner situation encounters bankruptcy late in the planning horizon. Thus, two sets of average net worth values are presented. The set labeled "A" includes observations from all fifteen replicates until year 18; in years 18 through 20, the average is based on fourteen replicates. The "B" averages are based only on the fourteen replicates that are solvent throughout the planning horizon. Generally, average net worth fluctuates in a relatively small range through year 13. From year 14 through year 20, a gradual increase occurs until the ending level of $89,288 is attained.

TABLE XII

AVERAGE NET WORTH OF SOLVENT FIRMS OVER A 20-YEAR PLANNING HORIZON, BEGINNING FARM SIZE OF 960 ACRES, SPECIFIED INITIAL OPERATOR AGE AND TENURE SITUATIONS, SOUTH CENTRAL GREAT PLAINS

Year	25-Year-Old Operator					45-Year-Old Operator			
	Full Owner[1]	Part Owner A[2]	Part Owner B[3]	Full Tenant A[2]	Full Tenant B[4]	Full Owner[1]	Part Owner[1]	Full Tenant A[2]	Full Tenant B[5]
	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
1	119,932	67,270	66,963	23,021	26,170	120,006	67,658	23,055	24,895
2	121,387	67,205	67,097	20,964	24,932	120,454	66,186	19,877	23,280
3	121,474	65,256	65,279	17,204	23,533	119,950	63,613	15,466	20,733
4	123,394	65,139	65,314	15,278	23,504	121,277	62,872	12,865	21,008
5	127,379	66,969	67,741	15,204	24,983	125,603	65,064	14,257	22,645
6	131,418	68,453	69,443	15,623	29,678	129,978	67,000	16,356	26,554
7	132,922	67,209	68,712	14,052	29,729	132,241	66,722	16,615	25,682
8	135,089	66,338	67,780	16,970	26,885	135,324	67,094	19,144	24,829
9	138,509	66,698	68,196	17,031	30,136	139,686	68,540	20,118	27,317
10	140,416	65,290	67,368	22,093	30,526	142,410	68,334	23,716	28,149
11	144,706	65,610	67,884	29,084	34,026	147,434	68,621	27,434	31,956
12	148,595	65,381	68,576	30,214	37,022	152,144	71,176	30,021	33,977
13	153,064	65,916	69,144	41,211	41,211	157,324	72,949	31,908	36,566
14	159,359	68,288	72,080	43,220	43,220	163,503	75,550	33,559	38,184
15	165,882	70,647	74,789	43,276	43,276	169,877	78,266	35,901	41,050
16	173,077	73,424	78,307	47,310	47,310	176,778	81,272	38,519	44,950
17	179,178	73,530	78,512	51,285	51,285	182,783	83,152	48,325	48,325
18	188,425	85,315	85,315	58,654	58,654	190,267	87,061	53,903	53,903
19	194,009	85,496	85,496	60,506	60,506	194,816	87,743	53,914	53,914
20	202,885	89,288	89,288	64,247	64,247	201,962	90,690	58,396	58,396

[1]All averages are based on fifteen replicates since no bankruptcies occur during the 20-year planning horizon.

[2]Averages in this column are based on the number of solvent replicates in each year. Therefore, the number of observations may vary from year to year.

[3]Averages in this column are all based on fourteen replicates that remain solvent over the entire 20-year planning horizon.

[4]Averages in this column are all based on four replicates that remain solvent over the entire 20-year planning horizon.

[5]Averages in this column are all based on five replicates that remain solvent over the entire 20-year planning horizon.

The full tenant (or no initial land equity) situations in both operator age categories have replicates that encounter bankruptcy. The 25-year-old's situation has four replicates that remain solvent for the full 20 years. Five replicates are solvent throughout the planning horizon in the 45-year-old's situation. The initial net worth level in the "A" situation is not exceeded until the middle of the planning horizon. However, if only replicates that are solvent for the entire planning period are considered (the "B" situation), the initial net worth levels are surpassed in year 6. The primary implication associated with the full tenant situations is that the replicates that do survive tend to experience increases in net worth. These increases in net worth are at least partially attributable to the occurrence of "good crop years" at critical points in the planning horizon.

A major concern is the ability of a firm to grow over time (measured in this study by increases in net worth). Table XIII summarizes initial net worth, ending net worth, total change in net worth, and average annual change in net worth for each of the situations with a starting farm size of 960 acres. The full owner situations exhibit the largest increases in net worth. The difference observed between the 25-year-old and 45-year-old starting ages is attributable to the ending farm size of the two situations (2,283 acres and 1,621 acres, respectively). Situations with initial tenure of a full tenant (i.e., no beginning land equity) exhibit a greater increase in net worth than the part owner situations over the 20-year planning horizon. In the part owner and full owner situations, the average net worth values can be somewhat misleading. Although absolute increases shown are greater in the full tenant situations, one must recall that the

TABLE XIII

SUMMARY OF AVERAGE INITIAL AND ENDING NET WORTH POSITIONS AND CHANGES IN NET WORTH OVER A 20-YEAR PLANNING HORIZON FOR SITUATIONS WITH A STARTING FARM SIZE OF 960 ACRES

Situation Identification	Average Initial Net Worth	Average Ending Net Worth	Total Increase in Average Net Worth	Average Annual Increase in Net Worth
	Dollars	Dollars	Dollars	Dollars
25-Year-Old Operator				
Full Owner[1]	119,932	202,885	82,953	4,148
Part Owner "A"[2]	67,270	89,288	22,018	1,101
Part Owner "B"[3]	66,963	89,288	22,325	1,116
Full Tenant "A"[2]	23,021	64,247	41,226	2,061
Full Tenant "B"[4]	26,170	64,247	38,077	1,904
45-Year-Old Operator				
Full Owner[1]	120,006	201,962	81,956	4,098
Part Owner[1]	67,658	90,690	23,032	1,152
Full Tenant "A"[2]	23,055	58,396	35,341	1,767
Full Tenant "B"[5]	24,895	58,396	33,501	1,675

[1]All averages are based on fifteen replicates since no bankruptcies occur during the 20-year planning horizon.

[2]These averages are based on the number of solvent replicates in each year (i.e., in years 1 and 20). Therefore, the number of observations underlying the average at these two points in the planning horizon are different.

[3]Averages are based on fourteen replicates that are solvent for the entire 20-year planning horizon.

[4]Averages are based on four replicates that are solvent for the entire 20-year planning horizon.

[5]Averages are based on five replicates that are solvent for the entire 20-year planning horizon.

average farm size for full tenants is considerably larger (especially in latter years of the planning horizon). Thus, the comparison of growth rates between part owner and full tenant situations must be tempered by realizing that several of the replicates in part owner situations simply survive during the planning horizon and exhibit little, if any, tendency to grow.

Farms with a Starting Size of 1,600 Acres

Each situation discussed in this section assumes a starting farm size of 1,600 acres (1,264 acres of cropland and 336 acres of native range). In all six situations with this starting farm size, all replicates are solvent throughout the entire 20-year planning horizon. Therefore, all averages presented in the tables for a given year are based on fifteen observations. The discussion of results is organized the same as the 960-acre farm-size category just presented.

Dominant Goals and Strategies

Situations with an initial tenure status of full owner are discussed first. Immediately following are discussions of the part owner and full tenant situations.

Full Owner, 25 Years Old. In the first decision year, two different goals, to avoid being forced out of business and to make the most annual profit, share the dominant role (Table XIV). The profit maximization goal is dominant in 11 of the 15 replicates; the survival-oriented goal is dominant in the remaining 4 replicates. These are the goals that serve as the decision criterion the first time that alternative strategies are evaluated. The top-ranked goal at the next three

TABLE XIV

SUMMARY OF DOMINANT GOALS, PLANS CHOSEN, AND LAND RESOURCES CONTROLLED IN DECISION YEARS BY REPLICATE FOR A 25 YEAR OLD FARM OPERATOR WITH A STARTING FARM SIZE OF 1,600 ACRES AND A BEGINNING TENURE STATUS OF A FULL OWNER

	Year 2			Year 6			Year 10			Year 14			Year 18		
Replicate	Dominant Goal[1]	Plan Chosen[2]	Farm Size	Dominant Goal[1]	Plan Chosen[2]	Farm Size	Dominant Goal[1]	Plan Chosen[2]	Farm Size	Dominant Goal[1]	Plan Chosen[2]	Farm Size	Dominant Goal[1]	Plan Chosen[2]	Farm Size
	Number	Number	Acres	Number	Number	Acres	Number	Number	Acres	Number	Number	Acres	Number	Number	Acres
1	2	1	1,600	4	2	1,920	4	3	2,240	4	3	2,560	6	3	2,880
2	8	2	1,920	4	2	2,240	4	3	2,560	4	3	2,880	4	3	3,200
3	8	2	1,920	4	2	2,240	4	3	2,560	4	3	2,880	4	3	3,200
4	8	2	1,920	4	2	2,240	4	3	2,560	4	3	2,880	4	3	3,200
5	8	2	1,920	4	2	2,240	4	3	2,560	4	3	2,880	4	3	3,200
6	8	2	1,920	4	2	2,240	4	3	2,560	4	3	2,880	4	3	3,200
7	8	2	1,920	4	2	2,240	4	3	2,560	4	3	2,880	4	3	3,200
8	2	1	1,600	4	2	1,920	4	3	2,240	4	3	2,560	4	3	2,880
9	8	2	1,920	4	2	2,240	4	3	2,560	4	3	2,880	4	3	3,200
10	8	2	1,920	4	3	2,240	4	3	2,560	4	3	2,880	6	3	3,200
11	8	2	1,920	4	2	2,240	4	3	2,560	4	3	2,880	4	3	3,200
12	2	1	1,600	4	2	1,920	4	3	2,240	4	3	2,560	6	3	2,880
13	8	2	1,920	4	2	2,240	4	3	2,560	4	3	2,880	4	3	3,200
14	2	1	1,600	4	2	1,920	4	3	2,240	4	3	2,560	6	3	2,880
15	8	2	1,920	4	2	2,240	4	3	2,560	4	3	2,880	4	3	3,200
Average			1,835			2,155			2,475			2,795			3,115
Range			320			320			320			320			320

[1]Goal numbers shown are defined as follows:
Goal 2 - to avoid being forced out of business,
Goal 4 - to avoid years of low profits or losses,
Goal 6 - to increase net worth, and
Goal 8 - to make the most annual profit.

[2]Plan numbers are associated with the following strategies:
Plan 1 - no change in size,
Plan 2 - rent an additional 320 acres, and
Plan 3 - buy an additional 320 acres.

evaluation points (sixth, tenth, and fourteenth years) is to avoid years of low profits or losses. In the eighteenth year of the planning horizon, the top-ranked goal is to increase net worth in four replicates and to avoid years of low profits or losses in eleven replicates. At various places in the planning horizon and in one or more replicates during non-decision years, the goals of controlling more acres and reducing borrowing needs assume the dominant role. The effects of non-dominant or decision-controlling goals are given fuller treatment in subsequent discussions.

At the first evaluation point (second year), all eleven of the replicates having a dominant goal of making the most annual profit choose to rent an additional 320 acres. The remaining four replicates implement the no-change strategy. Fourteen replicates rent additional land in the sixth year; the remaining replicate purchases 320 acres. In the tenth, fourteenth, and eighteenth year, all fifteen replicates select the strategy of purchasing additional acreage. Over the 20-year planning horizon, average farm size increases from the original 1,600 acres to 3,115 acres. Four replicates have an ending size of 2,880 acres, and the other eleven replicates have an ending size of 3,200 acres.

Full Owner, 45 Years Old. Four of the eight goals are dominant at some point in the planning horizon of one or more replicates. These goals are: (1) to avoid being forced out of business, (2) to avoid years of low profits or losses, (3) to increase net worth, and (4) to make the most annual profit. Dominant goals used as decision criteria for choosing between alternative plans in year 2 are to avoid being forced out of business (4 replicates) and to make the most annual

profit in 11 replicates (Table XV). At the next evaluation point, the dominant goals are different. For replicates that had avoid being forced out of business as the top-ranked goal, the dominant goal at this evaluation point is to increase net worth. The remaining replicates now have a dominant goal of avoiding year of low profits or losses. At the third evaluation point in the planning horizon (year 10), fourteen of the replicates have avoiding years of low profits or losses as the top-ranked goal. The other replicate still has increasing net worth as its dominant goal. Upon reaching the point of evaluating plans for the fourteenth year, seven replicates have increasing net worth in the dominant position. The other eight replicates retain avoiding years of low profits or losses as the top-ranking goal. The goal of increasing net worth is dominant for all replicates when plans are evaluated for the eighteenth year.

The first time that plans are evaluated eleven of the replicates elect to rent an additional 320 acres. The no-change plan is adopted by the other four replicates. In the sixth year, all fifteen replicates choose one of the expansionary strategies (14 replicates rent; 1 replicate buys additional land). Replicate 12 adopts the no-change plan at the next two evaluation points (the tenth and fourteenth years) because the satisficing level for increasing leisure time is not met by any of the plans. The other fourteen replicates choose the purchase option at both evaluation points. In the eighteenth year, four replicates expand by purchasing 320 acres, and the remaining eleven replicates adopt the no-change strategy (1 by default and 10 by choice). The ending average farm size of 2,837 acres is based on the following sizes attained by the individual replicates:

TABLE XV

SUMMARY OF DOMINANT GOALS, PLANS CHOSEN, AND LAND RESOURCES CONTROLLED IN DECISION YEARS BY REPLICATE FOR A 45 YEAR OLD FARM OPERATOR WITH A STARTING FARM SIZE OF 1,600 ACRES AND A BEGINNING TENURE STATUS OF A FULL OWNER

	Year 2			Year 6			Year 10			Year 14			Year 18		
Replicate	Dominant Goal[1]	Plan Chosen[2]	Farm Size	Dominant Goal[1]	Plan Chosen[2]	Farm Size	Dominant Goal[1]	Plan Chosen[2]	Farm Size	Dominant Goal[1]	Plan Chosen[2]	Farm Size	Dominant Goal[1]	Plan Chosen[2]	Farm Size
	Number	Number	Acres	Number	Number	Acres	Number	Number	Acres	Number	Number	Acres	Number	Number	Acres
1	2	1	1,600	6	2	1,920	4	3	2,240	6	3	2,560	6	3	2,880
2	8	2	1,920	4	2	2,240	4	3	2,560	4	3	2,880	6	1	2,880
3	8	2	1,920	4	2	2,240	4	3	2,560	4	3	2,880	6	1	2,880
4	8	2	1,920	4	2	2,240	4	3	2,560	6	3	2,880	6	1	2,880
5	8	2	1,920	4	2	2,240	4	3	2,560	6	3	2,880	6	1	2,880
6	8	2	1,920	4	2	2,240	4	3	2,560	4	3	2,880	6	1	2,880
7	8	2	1,920	4	2	2,240	4	3	2,560	4	3	2,880	6	1	2,880
8	2	1	1,600	6	2	1,920	4	3	2,240	6	3	2,560	6	3	2,880
9	8	2	1,920	4	2	2,240	4	3	2,560	4	3	2,880	6	1	2,880
10	8	2	1,920	4	3	2,240	6	3	2,560	6	3	2,880	6	3	3,200
11	8	2	1,920	4	2	2,240	4	3	2,560	4	3	2,880	6	1	2,880
12	2	1	1,600	6	2	1,920	4	1*	1,920	6	1*	1,920	6	1*	1,920
13	8	2	1,920	4	2	2,240	4	3	2,560	4	3	2,880	6	1	2,880
14	2	1	1,600	6	2	1,920	4	3	2,240	6	3	2,560	6	3	2,880
15	8	2	1,920	4	2	2,240	4	3	2,560	4	3	2,880	6	1	2,880
Average			1,835			2,155			2,453			2,752			2,837
Range			320			320			640			960			1,280

[1]Goal numbers shown are defined as follows:
Goal 2 - to avoid being forced out of business,
Goal 4 - to avoid years or low profits or losses,
Goal 6 - to increase net worth, and
Goal 8 - to make the most annual profit.

[2]Plan numbers are associated with the following strategies:
Plan 1 - no change in size; Plan 2 - rent an additional 320 acres; and Plan 3 - buy an additional 320 acres.

An asterisk (*) indicates Plan 1 was selected by default because the satisficing level(s) for one or more primary goals is not met by any of the plans included.

1,920 acres - 1 replicate,

2,880 acres - 13 replicates, and

3,200 acres - 1 replicate.

Part Owner, 25 Years Old. Three of the eight goals are dominant in one or more of the replicates in years that plans are evaluated. These three goals are: (1) to make the most annual profit, (2) to increase net worth, and (3) to avoid years of low profits or losses. The goal of making the most annual profit is the top-ranked goal in all fifteen replicates when plans are evaluated for year 2 (Table XVI). Goals of increasing net worth and avoiding years of low profits or losses play the dominant role when plans for year 6 are evaluated (net worth is dominant in six replicates). In evaluating plans for year 10, these same two goals are dominant with net worth being the top-ranked goal in only three of the fifteen replicates. Increasing net worth remains as the top-ranked goal in one replicate for the next decision year (year 14). Avoiding low profits or losses is dominant for the other 14 replicates in year 14 and for all replicates throughout the remainder of the planning horizon.

In year 2, all replicates select one of the expansionary plans with seven replicates renting more acres and eight replicates selecting the purchase option. Eleven replicates elect to rent additional acreage in year 6, and the other four buy 320 acres each. One replicate in year 10 defaults to the no-change alternative (the satisficing level specified for the consumption goal cannot be met). Ten of the remaining replicates rent additional acreage, and four buy land. In the fourteenth and eighteenth years, all replicates implement the purchase alternative. With regard to size changes, fourteen replicates

TABLE XVI

SUMMARY OF DOMINANT GOALS, PLANS CHOSEN, AND LAND RESOURCES CONTROLLED IN DECISION YEARS BY REPLICATE FOR A 25 YEAR OLD FARM OPERATOR WITH A STARTING FARM SIZE OF 1,600 ACRES AND A BEGINNING TENURE STATUS OF A PART OWNER

	Year 2			Year 6			Year 10			Year 14			Year 18		
Replicate	Dominant Goal[1]	Plan Chosen[2]	Farm Size	Dominant Goal[1]	Plan Chosen[2]	Farm Size	Dominant Goal[1]	Plan Chosen[2]	Farm Size	Dominant Goal[1]	Plan Chosen[2]	Farm Size	Dominant Goal[1]	Plan Chosen[2]	Farm Size
	Number	Number	Acres	Number	Number	Acres	Number	Number	Acres	Number	Number	Acres	Number	Number	Acres
1	8	2	1,920	4	2	2,240	6	3	2,560	4	3	2,880	4	3	3,200
2	8	3	1,920	4	2	2,240	4	2	2,560	4	3	2,880	4	3	3,200
3	8	3	1,920	4	2	2,240	4	2	2,560	4	3	2,880	4	3	3,200
4	8	2	1,920	6	3	2,240	4	3	2,560	4	3	2,880	4	3	3,200
5	8	2	1,920	6	2	2,240	6	3	2,560	4	3	2,880	4	3	3,200
6	8	3	1,920	4	2	2,240	4	2	2,560	4	3	2,880	4	3	3,200
7	8	3	1,920	4	2	2,240	4	2	2,560	4	3	2,880	4	3	3,200
8	8	2	1,920	6	2	2,240	6	2	2,560	6	3	2,880	4	3	3,200
9	8	3	1,920	4	2	2,240	4	2	2,560	4	3	2,880	4	3	3,200
10	8	2	1,920	6	3	2,240	4	3	2,560	4	3	2,880	4	3	3,200
11	8	3	1,920	4	2	2,240	4	2	2,560	4	3	2,880	4	3	3,200
12	8	2	1,920	6	3	2,240	4	2	2,560	4	3	2,880	4	3	3,200
13	8	3	1,920	4	2	2,240	4	2	2,560	4	3	2,880	4	3	3,200
14	8	2	1,920	6	3	2,240	4	1*	2,240	4	3	2,560	4	3	2,880
15	8	3	1,920	4	2	2,240	4	2	2,560	4	3	2,880	4	3	3,200
Average			1,920			2,240			2,539			2,859			3,179
Range			0			0			320			320			320

[1]Goal numbers shown are defined as follows:
Goal 4 - to avoid years of low profits or losses,
Goal 6 - to increase net worth, and
Goal 8 - to make the most annual profit.

[2]Plan numbers are associated with the following strategies:
Plan 1 - no change in size; Plan 2 - rent an additional 320 acres; and Plan 3 - buy an additional 320 acres.
An asterisk (*) indicates Plan 1 was selected by default because the satisficing level(s) for one or more primary goals is not met by any of the plans included.

increase farm size at each opportunity; the remaining replicate expands in all but one of the decision years. Thus, the ending average farm size of 3,179 acres is based on a distribution having fourteen replicates at 3,200 acres and one replicate at 2,880 acres.

Part Owner, 45 Years Old. The goal of making the most annual profit is dominant for all replicates when plans are evaluated for year 2 (Table XVII). In year 6, however, this goal remains dominant for only five of the replicates. Of the remaining ten replicates, six have increasing net worth as the top goal, and the other four have reducing borrowing needs in the dominant position. When plans are evaluated for year 10, ten replicates have a dominant goal of increasing net worth. The remaining five replicates have to make the most annual profit in the top position. At the last two points of plan evaluation (years 14 and 18), the dominant goal for all replicates is to increase net worth.

In year 2, to make the most profit is the primary decision criterion, and all replicates choose to increase farm size (seven rent, eight buy). The no-change alternative is selected by four replicates in year 6. Of the eleven remaining replicates, six rent additional acreage, and five choose to purchase additional acreage. In the tenth year of the planning horizon, one replicate defaults to the no-change strategy because the satisficing level for consumption is not met by any included plan. Eight replicates increase farm size by renting, and six choose the purchase alternative. In the last two decision years (years 14 and 18), fourteen replicates elect to purchase an additional 320 acres each. The other replicate in both decision years increases farm size by renting additional acreage. Choices made by the

TABLE XVII

SUMMARY OF DOMINANT GOALS, PLANS CHOSEN, AND LAND RESOURCES CONTROLLED IN DECISION YEARS BY REPLICATE FOR A 45 YEAR OLD FARM OPERATOR WITH A STARTING FARM SIZE OF 1,600 ACRES AND A BEGINNING TENURE STATUS OF A PART OWNER

	Year 2			Year 6			Year 10			Year 14			Year 18		
Replicate	Dominant Goal[1]	Plan Chosen[2]	Farm Size	Dominant Goal[1]	Plan Chosen[2]	Farm Size	Dominant Goal[1]	Plan Chosen[2]	Farm Size	Dominant Goal[1]	Plan Chosen[2]	Farm Size	Dominant Goal[1]	Plan Chosen[2]	Farm Size
	Number	Number	Acres	Number	Number	Acres	Number	Number	Acres	Number	Number	Acres	Number	Number	Acres
1	8	2	1,920	6	2	2,240	6	3	2,560	6	3	2,880	6	3	3,200
2	8	3	1,920	7	1	1,920	8	2	2,240	6	3	2,560	6	3	2,880
3	8	3	1,920	8	2	2,240	6	3	2,560	6	3	2,880	6	3	3,200
4	8	2	1,920	6	3	2,240	6	3	2,560	6	3	2,880	6	3	3,200
5	8	2	1,920	6	2	2,240	6	3	2,560	6	3	2,880	6	3	3,200
6	8	3	1,920	8	2	2,240	8	2	2,560	6	3	2,880	6	3	3,200
7	8	3	1,920	7	1	1,920	8	2	2,240	6	3	2,560	6	3	2,880
8	8	2	1,920	8	3	2,240	6	2	2,560	6	3	2,880	6	2	3,200
9	8	3	1,920	7	1	1,920	8	3	2,240	6	2	2,560	6	3	2,880
10	8	2	1,920	6	3	2,240	6	3	2,560	6	3	2,880	6	3	3,200
11	8	3	1,920	8	2	2,240	6	2	2,560	6	3	2,880	6	3	3,200
12	8	2	1,920	6	3	2,240	6	2	2,560	6	3	2,880	6	3	3,200
13	8	3	1,920	8	2	2,240	8	2*	2,560	6	3	2,880	6	3	3,200
14	8	2	1,920	6	3	2,240	6	1	2,240	6	3	2,560	6	3	2,880
15	8	3	1,920	7	1	1,920	6	2	2,240	6	3	2,560	6	3	2,880
Average			1,920			2,155			2,453			2,773			3,093
Range			0			320			320			320			320

[1]Goal numbers shown are defined as follows:
Goal 6 - to increase net worth,
Goal 7 - to reduce borrowing needs, and
Goal 8 - to make the most annual profit.

[2]Plan numbers are associated with the following strategies:
Plan 1 - no change in size; Plan 2 - rent an additional 320 acres; and Plan 3 - buy an additional 320 acres.
An asterisk (*) indicates Plan 1 was selected by default because the satisficing level(s) for one or more primary goals is not met by any of the plans included.

various replicates over the planning horizon result in an average farm size of 3,093 acres. Five replicates have attained a farm size of 2,880 acres, and the other ten control 3,200 acres each.

Full Tenant, 25 Years Old. The first time plans are evaluated (year 2) all replicates have making the most annual profit as the dominant goal (Table XVIII). At the next evaluation point (year 6), to increase net worth is the top-ranked goal for all fifteen replicates. Replicate 13 has making the most profit in the dominant position at the third evaluation of plans (year 10); all other replicates maintain increasing net worth as the top goal. In year 14, increasing net worth is again the dominant goal for all replicates. When plans are evaluated for the last time (year 18), two of the replicates experience a switch in the dominant goal from increasing net worth to avoiding years of low profits or losses.

In year 2, all replicates choose to increase farm size by renting additional acreage. Although all replicates choose to expand in year 6, they do not choose the same expansion alternative. Nine replicates rent more land, and six replicates purchase more land. In the tenth year, three of the alternative strategies included in the simulator are selected by at least one replicate. These decisions may be summarized as follows: (a) no-change alternative defaulted to by one replicate; (b) rent additional acreage chosen by 7 replicates; and (c) purchase additional acreage chosen by 7 replicates. In year 14, thirteen replicates increase farm size. One replicate rents, and twelve replicates buy additional land. The remaining two replicates replace 320 acres of rented land by purchasing 320 acres. All replicates again increase farm size in year 18. At this point in the

TABLE XVIII

SUMMARY OF DOMINANT GOALS, PLANS CHOSEN, AND LAND RESOURCES CONTROLLED IN DECISION YEARS BY REPLICATE FOR A 25 YEAR OLD FARM OPERATOR WITH A STARTING FARM SIZE OF 1,600 ACRES AND A BEGINNING TENURE STATUS OF A FULL TENANT

	Year 2			Year 6			Year 10			Year 14			Year 18		
Replicate	Dominant Goal[1]	Plan Chosen[2]	Farm Size	Dominant Goal[1]	Plan Chosen[2]	Farm Size	Dominant Goal[1]	Plan Chosen[2]	Farm Size	Dominant Goal[1]	Plan Chosen[2]	Farm Size	Dominant Goal[1]	Plan Chosen[2]	Farm Size
	Number	Number	Acres	Number	Number	Acres	Number	Number	Acres	Number	Number	Acres	Number	Number	Acres
1	8	2	1,920	6	2	2,240	6	3	2,560	6	3	2,880	6	3	3,200
2	8	2	1,920	6	2	2,240	6	3	2,560	6	3	2,880	6	2	3,200
3	8	2	1,920	6	3	2,240	6	2	2,560	6	3	2,880	6	3	3,200
4	8	2	1,920	6	2	2,240	6	3	2,560	6	3	2,880	6	3	3,200
5	8	2	1,920	6	3	2,240	6	3	2,560	6	3	2,880	4	3	3,200
6	8	2	1,920	6	2	2,240	6	3	2,560	6	4	2,560	6	2	2,880
7	8	2	1,920	6	2	2,240	6	2	2,560	6	3	2,880	6	3	3,200
8	8	2	1,920	6	2	2,240	6	2	2,560	6	3	2,880	6	2	3,200
9	8	2	1,920	6	2	2,240	6	2	2,560	6	3	2,880	6	3	3,200
10	8	2	1,920	6	3	2,240	6	3	2,560	6	3	2,880	4	3	3,200
11	8	2	1,920	6	2	2,240	6	2	2,560	6	3	2,880	6	3	3,200
12	8	2	1,920	6	3	2,240	6	2	2,560	6	3	2,880	6	3	3,200
13	8	2	1,920	6	3	2,240	8	2*	2,560	6	2	2,880	6	3	3,200
14	8	2	1,920	6	3	2,240	6	1*	2,240	6	3	2,560	6	3	2,880
15	8	2	1,920	6	2	2,240	6	3	2,560	6	4	2,560	6	2	2,880
Average			1,920			2,240			2,539			2,816			3,136
Range			0			0			320			320			320

[1]Goal numbers shown are defined as follows:
Goal 4 - to avoid years of low profits or losses,
Goal 6 - to increase net worth, and
Goal 8 - to make the most annual profits.

[2]Plan numbers are associated with the following strategies:
Plan 1 - no change in size; Plan 2 - rent an additional 320 acres; Plan 3 - buy an additional 320 acres; and Plan 4 - release 320 acres of rented land and purchase 320 acres.

An asterisk (*) indicates Plan 1 was selected by default because the satisficing level(s) for one or more primary goals is not met by any of the plans included.

planning horizon, four replicates rent, and eleven replicates buy additional land. The average ending farm size of 3,136 acres is based on 3 replicates controlling 2,880 acres each and 12 replicates controlling 3,200 acres each.

Full Tenant, 45 Years Old. The goal of making the most annual profit is dominant for all fifteen replicates at the end of year 1 and thus serves as the basic decision criterion in evaluating plans for implementation in year 2 (Table XIX). The dominant goal switches to increase net worth for ten replicates at the second evaluation point (year 6). The other five replicates retain making the most annual profit in the top position. When plans are evaluated the third time (year 10), net worth is dominant in twelve replicates, profit is dominant in two replicates, and the goal of maintaining or increasing family living (consumption) is dominant in one replicate. Increasing net worth is the top-ranked goal in planning for year 14 in fourteen replicates. The remaining replicate has making the most annual profit in the dominant position. In evaluating plans for year 18, increasing net worth is the top-ranked goal for all replicates.

With the exception of two replicates in one decision year, one of the expansionary plans are selected at every opportunity. These transactions may be summarized by years as follows:

Year 2 - all replicates rent;

Year 6 - nine replicates rent, six replicates buy;

Year 10 - four replicates rent, nine replicates buy, two replicates default to no-change;

Year 14 - one replicate rents, fourteen replicates buy; and

Year 18 - two replicates rent; thirteen replicates buy.

TABLE XIX

SUMMARY OF DOMINANT GOALS, PLANS CHOSEN, AND LAND RESOURCES CONTROLLED IN DECISION YEARS BY REPLICATE FOR A 45 YEAR OLD FARM OPERATOR WITH A STARTING FARM SIZE OF 1,600 ACRES AND A BEGINNING TENURE STATUS OF A FULL TENANT

	Year 2			Year 6			Year 10			Year 14			Year 18		
Replicate	Dominant Goal[1]	Plan Chosen[2]	Farm Size	Dominant Goal[1]	Plan Chosen[2]	Farm Size	Dominant Goal[1]	Plan Chosen[2]	Farm Size	Dominant Goal[1]	Plan Chosen[2]	Farm Size	Dominant Goal[1]	Plan Chosen[2]	Farm Size
	Number	Number	Acres	Number	Number	Acres	Number	Number	Acres	Number	Number	Acres	Number	Number	Acres
1	8	2	1,920	6	2	2,240	6	3	2,560	6	3	2,880	6	3	3,200
2	8	2	1,920	6	2	2,240	6	3	2,560	6	3	2,880	6	3	3,200
3	8	2	1,920	6	3	2,240	8	2	2,560	6	3	2,880	6	3	3,200
4	8	2	1,920	6	2	2,240	6	3	2,560	6	3	2,880	6	3	3,200
5	8	2	1,920	6	3	2,240	6	3	2,560	6	3	2,880	6	3	3,200
6	8	2	1,920	8	2	2,240	6	3	2,560	6	3	2,880	6	3	3,200
7	8	2	1,920	8	2	2,240	6	2	2,560	6	3	2,880	6	3	3,200
8	8	2	1,920	8	3	2,240	3	1*	2,240	8	2	2,560	6	3	2,880
9	8	2	1,920	6	2	2,240	6	2	2,560	6	3	2,880	6	3	3,200
10	8	2	1,920	6	3	2,240	6	3	2,560	6	3	2,880	6	3	3,200
11	8	2	1,920	8	2	2,240	6	2	2,560	6	3	2,880	6	3	3,200
12	8	2	1,920	6	2	2,240	6	3	2,560	6	3	2,880	6	3	3,200
13	8	2	1,920	8	3	2,240	8	3	2,560	6	3	2,880	6	2	3,200
14	8	2	1,920	6	3	2,240	6	1*	2,240	6	3	2,560	6	3	2,880
15	8	2	1,920	6	2	2,240	6	3	2,560	6	3	2,880	6	2	3,200
Average			1,920			2,240			2,517			2,837			3,157
Range			0			0			320			320			320

[1]Goal numbers shown are defined as follows:
Goal 3 - to maintain or increase family living,
Goal 6 - to increase net worth, and
Goal 8 - to make the most annual profit.

[2]Plan numbers are associated with the following strategies:
Plan 1 - no change in size; Plan 2 - rent an additional 320 acres; and Plan 3 - buy an additional 320 acres.

An asterisk (*) indicates Plan 1 was selected by default because the satisficing level(s) of one or more primary goals is not met by any of the plans included.

Two replicates have an ending farm size of 2,880 acres, and thirteen replicates have an ending farm size of 3,200 acres. Thus, average farm size has increased from the original 1,600 acres to 3,157 acres in year 20.

Comparison of Initial Age and Tenure Situations

Estimates of net farm income, consumption, and net worth over the 20-year planning horizon for the six situations with a starting farm size of 1,600 acres are summarized in Appendix D, Tables LXV through LXXXII.

Net Farm Income. The average net farm income estimates for the six situations with a beginning farm size of 1,600 acres are shown for each year of the planning horizon in Table XX. If net farm income in a given year is compared across equity (or initial tenure) situations for each of the operator age categories the average net farm income (returns to owned resources) of full owners is greater than that of part owners, and the net farm income of part owners always exceeds the incomes of full tenants. This relationship holds for every year of the planning horizon. The differences observed in average net farm income estimates between initial tenure situations result primarily from land rent being deducted in the part owner and full tenant situations and from differences in interest payments (which reflect the debt repayment capacity and general financial condition of the firm relative to the other situations). Since the firms in each situation increase size at almost every opportunity and their debt-asset ratios are usually relatively low, even years of low crop yields do not have the devastating effect observed in some of the

TABLE XX

AVERAGE NET FARM INCOME OF SOLVENT FIRMS OVER A 20-YEAR PLANNING HORIZON, BEGINNING FARM SIZE OF 1,600 ACRES, SPECIFIED INITIAL OPERATOR AGE AND TENURE SITUATIONS, SOUTH CENTRAL GREAT PLAINS[1]

Year	25-Year-Old Operator			45-Year-Old Operator		
	Full Owner	Part Owner	Full Tenant	Full Owner	Part Owner	Full Tenant
	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
1	11,232	6,152	3,275	11,232	6,152	3,275
2	22,961	17,660	13,458	22,973	17,669	14,749
3	21,953	16,289	13,102	21,894	16,237	13,040
4	27,095	21,548	17,945	27,006	21,466	17,895
5	31,265	25,349	21,686	31,140	25,241	21,592
6	32,407	26,372	22,298	32,332	25,311	22,116
7	26,297	20,131	15,204	26,249	19,384	15,103
8	28,720	21,719	17,037	28,718	20,851	16,892
9	32,742	27,127	21,964	32,749	26,567	21,867
10	31,446	23,380	18,510	31,326	23,072	18,313
11	37,055	29,977	24,678	36,552	29,519	24,596
12	35,289	28,153	23,246	35,190	27,604	23,149
13	34,511	27,523	22,745	34,310	27,394	22,322
14	40,701	33,371	27,664	39,807	33,709	28,134
15	41,239	33,722	28,360	41,106	34,086	28,224
16	42,477	35,369	30,144	41,664	35,248	30,166
17	40,681	33,751	28,326	39,748	33,152	28,412
18	49,866	42,243	36,120	43,893	41,573	36,903
19	41,895	34,660	29,170	37,732	34,285	29,069
20	48,030	41,126	35,104	42,731	40,484	35,629

[1]All replicates in each situation are solvent for the entire 20-year planning horizon. Therefore, all averages included in this table are based on observations from fifteen replicates.

960-acre farm situations. However, one extremely critical factor must be recognized as the major influential variable, the level of government payments received. Because these six situations start the planning period with a higher proportion of cropland than the other two farm size categories and because cropland and range are increased by the initial proportion when farm size is increased, these situations receive the highest government payments. The level of payments received provides a relatively large and stable income base from year to year which may offset crop yield variability to some extent.

Consumption. Estimates of family consumption for situations having an initial farm size of 1,600 acres are shown in Table XXI. Major differences observed in full owner and part owner situations between operator age categories are primarily attributable to two factors: (1) differences in the number of dependents in any given year and (2) differences in total income that result from farm size differences. In comparing the full tenant situations across ages, the number of dependents in a given year explains the major part of observed differences. Average consumption levels for the 45-year-old operator situations do not decline in the last half of the planning horizon as the number of dependents reaches its low point. This relationship occurs because increases in farm size (and consequently in total income) more than offset the drop in number of dependents in the consumption function.

Net Worth. Average net worth estimates for the six situations under consideration are presented in Table XXII. In each situation, average net worth increases annually from year 1 through year 20. The beginning net worth levels reflect differences in land equity for the

TABLE XXI

AVERAGE CONSUMPTION LEVELS FOR SOLVENT FIRMS OVER A 20-YEAR PLANNING HORIZON, BEGINNING FARM SIZE OF 1,600 ACRES, SPECIFIED INITIAL OPERATOR AGE AND TENURE SITUATIONS, SOUTH CENTRAL GREAT PLAINS[1]

	25-Year-Old Operator			45-Year-Old Operator		
Year	Full Owner	Part Owner	Full Tenant	Full Owner	Part Owner	Full Tenant
	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
1	6,000	6,000	6,000	6,000	6,000	6,000
2	8,116	8,200	8,177	9,371	9,456	9,432
3	8,661	8,761	8,733	9,288	9,384	9,360
4	9,163	9,362	9,337	9,791	9,989	9,964
5	10,111	10,286	10,260	9,482	9,657	9,631
6	10,457	10,741	10,714	9,829	9,902	10,086
7	9,883	10,068	10,041	8,627	8,697	8,784
8	10,439	10,556	10,527	9,184	9,085	9,271
9	10,933	11,263	11,232	9,678	9,797	9,977
10	10,861	10,960	10,928	9,590	9,572	9,666
11	12,078	12,308	12,275	10,719	10,822	10,924
12	11,906	12,026	11,991	10,573	10,479	10,730
13	11,356	11,528	11,492	10,014	9,982	10,159
14	11,908	12,079	11,861	10,445	10,696	10,734
15	12,484	12,638	12,530	11,215	11,161	11,254
16	12,844	12,978	12,843	11,411	11,461	11,631
17	13,076	13,182	12,998	11,641	11,609	11,806
18	13,558	13,653	13,441	11,244	12,140	12,353
19	13,176	13,304	13,202	11,141	11,733	11,924
20	13,829	13,950	13,734	11,597	12,454	12,638

[1]All replicates in each situation are solvent for the entire 20-year planning horizon. Therefore, all averages included in this table are based on observations from fifteen replicates.

TABLE XXII

AVERAGE NET WORTH OF SOLVENT FIRMS OVER A 20-YEAR PLANNING HORIZON, BEGINNING FARM SIZE OF 1,600 ACRES, SPECIFIED INITIAL OPERATOR AGE AND TENURE SITUATIONS, SOUTH CENTRAL GREAT PLAINS[1]

	25-Year-Old Operator			45-Year-Old Operator		
Year	Full Owner	Part Owner	Full Tenant	Full Owner	Part Owner	Full Tenant
	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
1	204,042	91,076	30,147	204,197	91,191	30,237
2	216,341	99,550	36,646	215,598	98,894	35,817
3	227,654	106,366	41,353	226,424	105,202	40,030
4	242,069	116,793	49,273	240,346	115,131	47,488
5	258,411	128,999	58,902	257,039	127,624	57,492
6	275,430	141,431	68,498	274,372	140,004	67,403
7	288,765	149,978	73,498	288,554	149,003	73,200
8	303,250	159,058	79,117	303,863	158,589	79,527
9	319,920	171,438	87,857	321,350	171,596	89,108
10	335,691	181,335	94,288	337,919	182,364	96,234
11	353,904	194,469	103,788	356,709	196,186	106,570
12	371,284	206,682	112,455	368,320	209,212	116,071
13	388,693	218,972	121,474	393,092	222,542	125,702
14	409,977	235,055	133,696	414,820	239,798	138,974
15	430,797	250,556	145,569	436,325	256,609	151,681
16	452,338	267,057	158,581	458,332	274,172	165,508
17	472,357	281,989	170,025	478,738	289,821	177,770
18	498,430	302,710	186,516	502,451	311,209	195,527
19	519,009	317,921	197,854	521,938	327,407	207,722
20	543,497	337,441	213,207	549,857	347,505	224,170

[1]All replicates in each situation are solvent for the entire 20-year planning horizon. Therefore, all averages included in this table are based on observations from fifteen replicates.

initial tenure situations with each of the operator age categories. The ending net worth in each of the 45-year-old operator situations is greater than the ending net worth in the corresponding equity-tenure situation for the 25-year-old operator situations. The most apparent influencing factor is the difference in consumption between the two age groups resulting from different numbers of dependents. The relatively lower consumption by the 45-year-old operator enables a slightly faster rate of cash accumulation or debt repayment. Some of the differences observed in the estimated net worth values are also directly attributable to strategies chosen (e.g. rent, buy, or no-change) in decision years throughout the planning horizon.

With regard to growth over time (measured by increases in net worth), the full owner situations exhibit the largest total increase in net worth over the 20-year planning horizon, and the full tenant (no land equity) situations have the smallest increase (Table XXIII). This relationship differs from that observed for the 960-acre farm situations because comparable size increases occur in all situations. The net worth increases in the 45-year-old operator situations (relative to corresponding equity positions for the younger operator) do not appear to be significantly larger, especially if one uses the average annual increase as the basis of comparison.

Farms with a Starting Size of 2,560 Acres

The situations discussed in this section assume a starting farm size of 2,560 acres (1,050 acres of cropland and 1,510 acres of native range). All replicates in the full owner and part owner situations are solvent throughout the entire 20-year planning horizon.

TABLE XXIII

SUMMARY OF AVERAGE INITIAL AND ENDING NET WORTH POSITIONS AND CHANGES IN NET WORTH OVER A 20-YEAR PLANNING HORIZON FOR SITUATIONS WITH A STARTING FARM SIZE OF 1,600 ACRES[1]

Situation Identification	Average Initial Net Worth	Average Ending Net Worth	Total Increase in Average Net Worth	Average Annual Increase in Net Worth
	Dollars	Dollars	Dollars	Dollars
25-Year-Old Operator				
Full Owner	204,042	543,497	339,455	16,973
Part Owner	91,076	337,441	246,365	12,318
Full Tenant	30,147	213,207	183,060	9,153
45-Year-Old Operator				
Full Owner	204,197	549,857	345,660	17,283
Part Owner	91,191	347,505	256,314	12,816
Full Tenant	30,237	224,170	193,933	9,697

[1]Average net worth values included in this table are all based on fifteen replicates since all replicates remained solvent throughout the entire 20-year planning horizon.

However, thirteen of the fifteen replicates in the 25-year-old full tenant situation and twelve replicates in the 45-year-old full tenant situation encounter bankruptcy by the end of the planning period. Thus, two sets of averages are included for the full tenant situations.

Dominant Goals and Strategies

Full owner situations are considered first. Immediately following are discussions of the part owner and full tenant situations.

Full Owner, 25 Years Old. Only two goals occupy the dominant position in decision years. These goals are to avoid years of low profits or losses and to increase net worth (Table XXIV). In the first four decision years (i.e., years 2, 6, 10, and 14), to avoid low profits or losses serves as the basic decision criterion for all replicates. To increase net worth is dominant in two replicates in year 18.

When plans are evaluated for year 2, avoiding low profits or losses is the dominant goal, and all goals except to increase leisure time are in the primary group (which means that their satisficing levels must be met). The plan of renting an additional 320 acres has the highest strategy decision value for the dominant goal in all fifteen replicates. In addition, the rental plan also meets all of the specified satisficing levels of primary goals. Thus, the rental alternative is implemented by all replicates, and average farm size increases to 2,880 acres for years 2 through 5.

In planning for the sixth year of operation, avoiding low profits or losses is still the top-ranked goal in all replicates. The

TABLE XXIV

SUMMARY OF DOMINANT GOALS, PLANS CHOSEN, AND LAND RESOURCES CONTROLLED IN DECISION YEARS BY REPLICATE FOR A 25 YEAR OLD FARM OPERATOR WITH A STARTING FARM SIZE OF 2,560 ACRES AND A BEGINNING TENURE STATUS OF A FULL OWNER

	Year 2			Year 6			Year 10			Year 14			Year 18		
Replicate	Dominant Goal[1]	Plan Chosen[2]	Farm Size	Dominant Goal[1]	Plan Chosen[2]	Farm Size	Dominant Goal[1]	Plan Chosen[2]	Farm Size	Dominant Goal[1]	Plan Chosen[2]	Farm Size	Dominant Goal[1]	Plan Chosen[2]	Farm Size
	Number	Number	Acres	Number	Number	Acres	Number	Number	Acres	Number	Number	Acres	Number	Number	Acres
1	4	2	2,880	4	1	2,880	4	2	3,200	4	3	3,520	4	2	3,840
2	4	2	2,880	4	1	2,880	4	2	3,200	4	2	3,520	4	3	3,840
3	4	2	2,880	4	2	3,200	4	1	3,200	4	2	3,520	4	2	3,840
4	4	2	2,880	4	1	2,880	4	2	3,200	4	2	3,520	4	3	3,840
5	4	2	2,880	4	1	2,880	4	2*	3,200	4	3	3,520	4	3	3,840
6	4	2	2,880	4	4	2,880	4	1*	2,880	4	1	2,880	6	2	3,200
7	4	2	2,880	4	1*	2,880	4	1	2,880	4	2	3,200	4	2	3,520
8	4	2	2,880	4	1*	2,880	4	2*	3,200	4	2	3,520	4	2	3,840
9	4	2	2,880	4	2	3,200	4	1*	3,200	4	2	3,520	4	2	3,840
10	4	2	2,880	4	2*	3,200	4	2*	3,520	4	3	3,840	4	3	4,160
11	4	2	2,880	4	1*	2,880	4	1*	2,880	4	2	3,200	4	1*	3,200
12	4	2	2,880	4	1	2,880	4	2*	3,200	4	2	3,520	4	3	3,840
13	4	2	2,880	4	4	2,880	4	1*	2,800	4	2	3,200	6	2	3,520
14	4	2	2,880	4	2	3,200	4	2	3,520	4	3	3,840	4	2	4,160
15	4	2	2,880	4	1	2,880	4	2	3,200	4	2	3,520	4	2	3,840
Average			2,880			2,965			3,157			3,456			3,755
Range			0			320			640			960			960

[1]Goal numbers shown are defined as follows:
Goal 4 - to avoid years of low profits or losses, and
Goal 6 - to increase net worth.

[2]Plan numbers are associated with the following strategies:
Plan 1 - no change in size; Plan 2 - rent an additional 320 acres; Plan 3 - buy an additional 320 acres; and Plan 4 - release 320 acres of rented land, and buy 320 acres.

An asterisk (*) indicates Plan 1 was selected by default because the satisficing level(s) of one or more primary goals is not met by any of the plans included.

no-change strategy is adopted by nine of the fifteen replicates (6 by choice and 3 by default). In the six replicates that actually choose this strategy, the expansionary plans (or the rental and purchase alternatives) have higher strategy decision values for the dominant goal than does the no-change plan. However, the maximum (or satisficing level) established for the goal of reducing borrowing needs is exceeded by both of the expansionary plans. Therefore, these plans are excluded from consideration, and the no-change strategy is selected because its strategy decision value for the dominant goal is higher than the value associated with the trade strategy (replacing rented acreage with purchased acreage). The three defaults occur because none of the included plans meet the satisficing level for the goal of reducing borrowing needs. Four replicates elect to rent an additional 320 acres. In each of these replicates, the financial condition of the firm is relatively better in preceding years (due to higher net farm income), and borrowing needs are not restrictive. The two remaining replicates are essentially forced to choose replacing rented acreage with purchased acreage because it is the only included alternative for which borrowing needs are not restrictive. Although only four replicates elected to increase farm size, average farm size is 2,965 acres based on decisions made in year 6.

Avoiding low profits or losses is still the dominant goal in all replicates when plans are evaluated in the tenth year. The consumption-oriented goal (maintaining or increasing family living) becomes a member of the secondary group of goals, and its satisficing level no longer has to be met by the plans being considered. The rental alternative is selected as the appropriate strategy to follow by

nine of the replicates. The no-change strategy is chosen by two replicates based on the strategy decision values for the dominant goal. However, the default option is activated in four of the replicates, and the no-change plan is implemented because none of the plans evaluated can meet the required satisficing level for the goal of reducing borrowing needs. Even though the number of acres controlled does not change in six replicates, average farm size increases to 3,157 acres in year 10.

The goal hierarchy on which decisions in year 14 are based is the same as the previous decision year. Fourteen replicates choose one of the expansionary plans (10 rent and 4 buy). The no-change alternative is selected by the remaining replicate. Once again, borrowing needs prove to be restrictive and exclude the expansionary plans from consideration. In instances where land purchase is selected, the variable yields have been high enough to generate sufficient capital accumulation to allow cash to be paid for the major portion of the 320 acres bought. The fact that interest associated with real estate debt is avoided in these instances results in the land-purchase plan having the highest strategy-decision value for the dominant goal (avoiding low profits or losses). In all of the replicates for which the renting alternative is selected, this plan has the highest strategy-decision value for the dominant goal in addition to meeting all of the necessary satisficing levels.

In the last decision year of the planning horizon (year 18), increasing net worth becomes the dominant goal in two replicates. Avoiding low profits or losses remains in the dominant position for the other thirteen replicates. Nine replicates choose to rent an

additional 320 acres, five replicates elect to buy an additional 320 acres, and one replicate defaults to the no-change strategy because none of the included plans meet the satisficing level specified for the goal of increasing leisure time. The current financial position of the firm (especially in terms of cash accumulated) is the primary factor that influences the decision to rent or buy based on either of the two dominant goals.

Full Owner, 45 Years Old. The goal of making the most annual profit is dominant for all replicates when plans are evaluated for year 2 (Table XXV). Using this goal as the major decision criterion, all replicates choose to rent an additional 320 acres. Thus, average farm size increases to 2,880 acres, and the implied tenure status for all replicates changes from full owner to part owner.

In the other four decision years, both the dominant goal and the strategy adopted are the same for all replicates in each year. The dominant goal in each case is to increase net worth, and the consumption goal is always a member of the secondary group. However, in years 6 through 20, the goal of increasing leisure time becomes a primary goal. Even though it never is the dominant goal, a plan must meet the satisficing level specified for leisure time before that plan will be selected as a clear-cut choice by the simulator. The size of farm attained prior to year 6 is not large enough to require the services of a full-time hired man (i.e., less than 2,600 hours of part-time labor are hired), and operator labor is utilized to the degree that insufficient leisure time is available for meeting the satisficing level specified. Since none of the included alternatives can meet the satisficing level for leisure time, the default option is activated,

TABLE XXV

SUMMARY OF DOMINANT GOALS, PLANS CHOSEN, AND LAND RESOURCES CONTROLLED IN DECISION YEARS BY REPLICATE FOR A 45 YEAR OLD FARM OPERATOR WITH A STARTING FARM SIZE OF 2,560 ACRES AND A BEGINNING TENURE STATUS OF A FULL OWNER

	Year 2			Year 6			Year 10			Year 14			Year 18		
Replicate	Dominant Goal[1]	Plan Chosen[2]	Farm Size	Dominant Goal[1]	Plan Chosen[2]	Farm Size	Dominant Goal[1]	Plan Chosen[2]	Farm Size	Dominant Goal[1]	Plan Chosen[2]	Farm Size	Dominant Goal[1]	Plan Chosen[2]	Farm Size
	Number	Number	Acres	Number	Number	Acres	Number	Number	Acres	Number	Number	Acres	Number	Number	Acres
1	8	2	2,880	6	1*	2,880	6	1*	2,880	6	1*	2,880	6	1*	2,880
2	8	2	2,880	6	1*	2,880	6	1*	2,880	6	1*	2,880	6	1*	2,880
3	8	2	2,880	6	1*	2,880	6	1*	2,880	6	1*	2,880	6	1*	2,880
4	8	2	2,880	6	1*	2,880	6	1*	2,880	6	1*	2,880	6	1*	2,880
5	8	2	2,880	6	1*	2,880	6	1*	2,880	6	1*	2,880	6	1*	2,880
6	8	2	2,880	6	1*	2,880	6	1*	2,880	6	1*	2,880	6	1*	2,880
7	8	2	2,880	6	1*	2,880	6	1*	2,880	6	1*	2,880	6	1*	2,880
8	8	2	2,880	6	1*	2,880	6	1*	2,880	6	1*	2,880	6	1*	2,880
9	8	2	2,880	6	1*	2,880	6	1*	2,880	6	1*	2,880	6	1*	2,880
10	8	2	2,880	6	1*	2,880	6	1*	2,880	6	1*	2,880	6	1*	2,880
11	8	2	2,880	6	1*	2,880	6	1*	2,880	6	1*	2,880	6	1*	2,880
12	8	2	2,880	6	1*	2,880	6	1*	2,880	6	1*	2,880	6	1*	2,880
13	8	2	2,880	6	1*	2,880	6	1*	2,880	6	1*	2,880	6	1*	2,880
14	8	2	2,880	6	1*	2,880	6	1*	2,880	6	1*	2,880	6	1*	2,880
15	8	2	2,880	6	1*	2,880	6	1*	2,880	6	1*	2,880	6	1*	2,880
Average			2,880			2,880			2,880			2,880			2,880
Range			0			0			0			0			0

[1]Goal numbers shown are defined as:
Goal 6 - to increase net worth, and
Goal 8 - to make the most annual profit.

[2]Plan numbers are associated with the following strategies:
Plan 1 - no change in size, and Plan 2 - rent an additional 320 acres.

An asterisk (*) indicates Plan 1 was selected by default because the satisficing level(s) of one or more primary goals is not met by any of the plans included.

and all replicates implement the no-change strategy. Because leisure time is a primary goal for the remainder of the planning horizon and because no changes occurred in year 6, all replicates exercise the default option in the remaining decision years.

Part Owner, 25 Years Old. The goal of avoiding low profits or losses is dominant throughout the 20-year planning horizon for all replicates (Table XXVI). Thus, avoiding low profits or losses is the primary decision criterion in each year that alternative strategies are evaluated.

When alternative strategies are evaluated for year 2, all fifteen replicates choose to rent an additional 320 acres. At the next four evaluation points, the choice of a strategy varies between replicates. The no-change alternative is selected by ten replicates in the sixth year, by twelve replicates in the tenth year, by three replicates in the fourteenth year, and by eight replicates in the eighteenth year. In years 6, 10, and 14, all replicates that do not select the no-change strategy elect to increase farm size by renting an additional 320 acres. However, in year 18, two replicates choose to buy land, and five replicates choose to rent more land. Average farm size increases from 2,560 acres in year 1 to 3,456 acres at the end of year 20. The ending farm sizes and the number of replicates at each size are:

2,880 acres - 3 replicates,

3,200 acres - 3 replicates,

3,520 acres - 5 replicates,

3,840 acres - 2 replicates, and

4,160 acres - 2 replicates.

TABLE XXVI

SUMMARY OF DOMINANT GOALS, PLANS CHOSEN, AND LAND RESOURCES CONTROLLED IN DECISION YEARS BY REPLICATE FOR A 25 YEAR OLD FARM OPERATOR WITH A STARTING FARM SIZE OF 2,560 ACRES AND A BEGINNING TENURE STATUS OF A PART OWNER

	Year 2			Year 6			Year 10			Year 14			Year 18		
Replicate	Dominant Goal[1]	Plan Chosen[2]	Farm Size	Dominant Goal[1]	Plan Chosen[2]	Farm Size	Dominant Goal[1]	Plan Chosen[2]	Farm Size	Dominant Goal[1]	Plan Chosen[2]	Farm Size	Dominant Goal[1]	Plan Chosen[2]	Farm Size
	Number	Number	Acres	Number	Number	Acres	Number	Number	Acres	Number	Number	Acres	Number	Number	Acres
1	4	2	2,880	4	1	2,880	4	1*	2,880	4	2	3,200	4	2	3,520
2	4	2	2,880	4	1	2,880	4	1	2,880	4	2	3,200	4	2	3,520
3	4	2	2,880	4	2	3,200	4	1*	3,200	4	2	3,520	4	1*	3,520
4	4	2	2,880	4	1*	2,880	4	1	2,880	4	2	3,200	4	2	3,520
5	4	2	2,880	4	1	2,880	4	2	3,200	4	2	3,520	4	3	3,840
6	4	2	2,880	4	1*	2,880	4	1*	2,880	4	1*	2,880	4	1	2,880
7	4	2	2,880	4	1*	2,880	4	1*	2,880	4	2	3,200	4	1*	3,200
8	4	2	2,880	4	1*	2,880	4	1	2,880	4	1	2,880	4	1*	2,880
9	4	2	2,880	4	2	3,200	4	1*	3,200	4	2	3,520	4	1	3,520
10	4	2	2,880	4	2	3,200	4	2	3,520	4	2	3,840	4	3	4,160
11	4	2	2,880	4	1*	2,880	4	1*	2,880	4	2	3,200	4	1*	3,200
12	4	2	2,880	4	2	3,200	4	1*	3,200	4	2	3,520	4	2	3,840
13	4	2	2,880	4	1*	2,880	4	1*	2,880	4	2	3,200	4	1*	3,200
14	4	2	2,880	4	2	3,200	4	2	3,520	4	2	3,840	4	2	4,160
15	4	2	2,880	4	1	2,880	4	1*	2,880	4	1*	2,880	4	1*	2,880
Average			2,880			2,987			3,051			3,307			3,456
Range			0			320			640			960			1,280

[1]The goal number shown is defined as follows:
Goal 4 - to avoid years of low profits or losses.

[2]Plan numbers are associated with the following strategies:
Plan 1 - no change in size; Plan 2 - rent an additional 320 acres; and Plan 3 - buy an additional 320 acres.
An asterisk (*) indicates Plan 1 was selected by default because the satisficing level(s) of one or more primary goals is not met by any of the plans included.

Part Owner, 45 Years Old. Dominant goals, plans chosen, and land resources controlled in decision years are summarized for this situation in Table XXVII. Using the dominant goal of making the most annual profit as the major decision criterion in year 2, all replicates choose to increase farm size by 320 acres. Thus, average farm size increases to 2,880 acres.

In the other four decision years, the dominant goal is either to make the most annual profit or to increase net worth. Differences in expected net farm income and in net worth from the last production period determine which of the two goals will be dominant since both of these variables are used to estimate the scale values associated with the two specified goals.

In years 6 and 10, the no-change strategy is adopted by 10 replicates each year. Five replicates exercise the default option in year 6, and four replicates find it necessary to default in year 10. All defaults occur because the satisficing level for the goal of reducing borrowing needs becomes restrictive. Even in replicates where the implementation of the no-change strategy by choice is indicated, the selection of this strategy is essentially forced because the other alternatives are excluded from consideration by high borrowing needs.

In years 14 and 18, all defaults to the no-change alternative occur because the satisficing level for increasing leisure time cannot be met by any of the included plans. Where a choice of the no-change plan is indicated, the expansionary plans (and sometimes the trade-land strategy) are not considered because of high borrowing needs.

Year 2 - all replicates rent;

TABLE XXVII

SUMMARY OF DOMINANT GOALS, PLANS CHOSEN, AND LAND RESOURCES CONTROLLED IN DECISION YEARS BY REPLICATE FOR A 45 YEAR OLD FARM OPERATOR WITH A STARTING FARM SIZE OF 2,560 ACRES AND A BEGINNING TENURE STATUS OF A PART OWNER

	Year 2			Year 6			Year 10			Year 14			Year 18		
Replicate	Dominant Goal[1]	Plan Chosen[2]	Farm Size	Dominant Goal[1]	Plan Chosen[2]	Farm Size	Dominant Goal[1]	Plan Chosen[2]	Farm Size	Dominant Goal[1]	Plan Chosen[2]	Farm Size	Dominant Goal[1]	Plan Chosen[2]	Farm Size
	Number	Number	Acres	Number	Number	Acres	Number	Number	Acres	Number	Number	Acres	Number	Number	Acres
1	8	2	2,880	6	1	2,880	6	1	2,880	8	1*	2,880	8	1*	2,880
2	8	2	2,880	8	1	2,880	8	2	3,200	6	2	3,520	6	2	3,840
3	8	2	2,880	8	2	3,200	8	1*	3,200	8	2	3,520	6	2	3,840
4	8	2	2,880	8	1	2,880	6	2	3,200	6	2	3,520	6	3	3,840
5	8	2	2,880	8	1	2,880	6	2	3,200	6	2	3,520	6	3	3,840
6	8	2	2,880	8	1*	2,880	8	1*	2,880	8	1*	2,880	8	1*	2,880
7	8	2	2,880	8	1*	2,880	8	1	2,880	8	1*	2,880	8	1*	2,880
8	8	2	2,880	8	1*	2,880	6	1	2,880	6	1	2,880	8	1*	2,880
9	8	2	2,880	6	2	3,200	8	1*	3,200	6	2	3,520	8	2	3,840
10	8	2	2,880	8	2	3,200	6	2	3,520	6	2	3,840	6	3	4,160
11	8	2	2,880	8	1*	2,880	6	1*	2,880	8	1*	2,880	8	1*	2,880
12	8	2	2,880	8	2	3,200	8	1*	3,200	6	2	3,520	6	2	3,840
13	8	2	2,880	8	1*	2,880	8	1*	2,880	6	2	3,200	6	1	3,200
14	8	2	2,880	8	2	3,200	6	2	3,520	6	2	3,840	6	2	4,160
15	8	2	2,880	6	1	2,880	8	1	2,880	6	1	2,880	8	1*	2,880
Average			2,880			2,987			3,093			3,285			3,456
Range			0			320			640			960			1,280

[1]Goal numbers shown are defined as follows:
Goal 6 - to increase net worth, and
Goal 8 - to make the most annual profit.

[2]Plan numbers are associated with the following strategies:
Plan 1 - no change in size; Plan 2 - rent an additional 320 acres; and Plan 3 - buy an additional 320 acres.
An asterisk (*) indicates Plan 1 was selected by default because the satisficing level(s) of one or more primary goals is not met by any of the included plans.

Year 6 - ten replicates implement no-change, five replicates rent;

Year 10 - same distribution of choices as Year 6;

Year 14 - six replicates choose no-change, nine replicates rent; and

Year 18 - seven replicates choose no-change, five replicates rent, and three replicates buy.

These decisions result in replicates having the following farm sizes in year 20: 2,880 acres (6 replicates); 3,200 acres (1 replicate); 3,840 acres (6 replicates); and 4,160 acres (2 replicates). Average farm size increases from 2,560 acres in year 1 to 3,456 acres in year 20.

Full Tenant, 25 Years Old. Table XXVIII summarizes the dominant goals, plans chosen, and farm size changes by replicate for this situation. In planning for year 2, all replicates have a dominant goal of making the most annual profit. Using this goal as the major decision criterion, all replicates choose to increase farm size (five rent and ten buy). Therefore, average farm size increases to 2,880 acres.

Three replicates elect to rent an additional 320 acres based on a dominant goal of increasing net worth in year 6. The net worth goal is top-ranked in nine replicates; the remaining six replicates retain profit maximization in the dominant position. Twelve of the replicates adopt the no-change strategy (3 by choice, 9 by default). The satisficing level associated with reducing borrowing needs cannot be met in any of the three replicates that choose this plan by the rental, purchase, or land-trade alternatives. Since three replicates add acreage, average farm size increases to 2,944 acres.

In year 10, one replicate rents an additional 320 acres and fourteen replicates implement the no-change strategy. High borrowing needs

TABLE XXVIII

SUMMARY OF DOMINANT GOALS, PLANS CHOSEN, AND LAND RESOURCES CONTROLLED IN DECISION YEARS BY REPLICATE FOR A 25 YEAR OLD FARM OPERATOR WITH A STARTING FARM SIZE OF 2,560 ACRES AND A BEGINNING TENURE STATUS OF A FULL TENANT

	Year 2			Year 6			Year 10			Year 14			Year 18		
Replicate	Dominant Goal[1]	Plan Chosen[2]	Farm Size	Dominant Goal[1]	Plan Chosen[2]	Farm Size	Dominant Goal[1]	Plan Chosen[2]	Farm Size[3]	Dominant Goal[1]	Plan Chosen[2]	Farm Size[3]	Dominant Goal[1]	Plan Chosen[2]	Farm Size[3]
	Number	Number	Acres	Number	Number	Acres	Number	Number	Acres	Number	Number	Acres	Number	Number	Acres
1	8	3	2,880	6	1	2,880	8	1*	2,880	8	1	2,880	8	1*	(2,880)
2	8	2	2,880	6	1	2,880	8	2	3,200	6	1	(3,200)	6	1*	(3,200)
3	8	2	2,880	6	2	3,200	8	1*	3,200	6	1*	(3,200)	6	1*	(3,200)
4	8	3	2,880	8	1*	2,880	1	1*	2,880	8	1	2,880	8	1*	2,880
5	8	3	2,880	8	1*	2,880	8	1	2,880	6	1	2,880	8	1*	(2,880)
6	8	3	2,880	8	1*	2,880	6	1*	(2,880)	6	1*	(2,880)	6	1*	(2,880)
7	8	2	2,880	6	1*	2,880	8	1*	(2,880)	6	1*	(2,880)	6	1*	(2,880)
8	8	3	2,880	8	1*	2,880	6	1*	(2,880)	6	1*	(2,880)	6	1*	(2,880)
9	8	3	2,880	6	1	2,880	6	1*	(2,880)	6	1*	(2,880)	6	1*	(2,880)
10	8	3	2,880	6	2	3,200	8	1*	3,200	8	1	3,200	8	1*	3,200
11	8	2	2,880	6	1*	2,880	1	1*	2,880	6	1	(2,880)	6	1*	(2,880)
12	8	3	2,880	6	1*	2,880	8	1*	2,880	8	1*	2,880	8	1*	2,880
13	8	3	2,880	8	1*	2,880	6	1*	(2,880)	6	1*	(2,880)	6	1*	(2,880)
14	8	3	2,880	8	1*	2,880	6	1*	2,880	6	1	2,880	8	1*	2,880
15	8	2	2,880	6	2	3,200	6	1*	3,200	6	1*	(3,200)	6	1*	(3,200)
Average			2,880			2,944			3,008			2,933			2,960
Range			0			320			320			320			320

[1]Goal numbers shown are defined as follows:
Goal 1 - to control more acres,
Goal 6 - to increase net worth, and
Goal 8 - to make the most annual profit.

[2]Plan numbers are associated with the following strategies:
Plan 1 - no change in size; Plan 2 - rent an additional 320 acres; and Plan 3 - buy an additional 320 acres.
An asterisk (*) indicates Plan 1 was selected by default because the satisficing level(s) of one or more primary goals is not met by any of the plans included.

[3]Observations enclosed in parentheses are associated with firms that have encountered bankruptcy, and they are not used in computing average size. Thus, average size refers to the average size of viable firms.

(which exceed the satisficing level) dictate acceptance of the no-change plan. In addition to the two goals that have previously shared the dominant role, the goal of controlling more acres occupies the top spot in two replicates. The average farm size of replicates that have not encountered bankruptcy increases to 3,008 acres.

In the last two decision years, the top-ranked goal varies between to make the most annual profit and to increase net worth. The determination of the dominant goal in a given replicate is primarily dependent on the current financial condition of the firm, as reflected by net farm income, assets, and net worth. The values of these financial variables may differ considerably from one replicate to another and from one year to another, thus influencing the scale value for a goal and consequently its ranking in the hierarchy. Regardless of the dominant goal in these last two decision years, the no-change strategy is adopted by all replicates. This strategy selection occurs because the satisficing level associated with reducing borrowing needs is once again an effective restriction. Average farm size declines to 2,933 acres in year 14 and increases to 2,960 acres in year 18. The averages shown are based on solvent replicates in a given decision year. Thus, the decline in average size occurs because some of the larger replicates encountered bankruptcy, and the increase in year 18 occurs because additional bankruptcies are associated with the smaller farm sizes.

Full Tenant, 45 Years Old. To make the most annual profit is the dominant goal for all replicates in the first three decision years, i.e., years 2, 6, and 10 (Table XXIX). In addition, the profit goal remains in the dominant position for all replicates that are solvent

TABLE XXIX

SUMMARY OF DOMINANT GOALS, PLANS CHOSEN, AND LAND RESOURCES CONTROLLED IN DECISION YEARS BY REPLICATE FOR A 45 YEAR OLD FARM OPERATOR WITH A STARTING FARM SIZE OF 2,560 ACRES AND A BEGINNING TENURE STATUS OF A FULL TENANT

	Year 2			Year 6			Year 10			Year 14			Year 18		
Replicate	Dominant Goal[1]	Plan Chosen[2]	Farm Size	Dominant Goal[1]	Plan Chosen[2]	Farm Size	Dominant Goal[1]	Plan Chosen[2]	Farm Size[3]	Dominant Goal[1]	Plan Chosen[2]	Farm Size[3]	Dominant Goal[1]	Plan Chosen[2]	Farm Size[3]
	Number	Number	Acres	Number	Number	Acres	Number	Number	Acres	Number	Number	Acres	Number	Number	Acres
1	8	3	2,880	8	1	2,880	8	2	3,200	8	2	3,520	8	2	(3,840)
2	8	2	2,880	8	1	2,880	8	3	3,200	8	3	(3,520)	8	1*	(3,520)
3	8	2	2,880	8	3	3,200	8	1*	3,200	6	1*	(3,200)	6	1*	(3,200)
4	8	3	2,880	8	1*	2,880	8	1*	2,880	8	1	2,880	8	1*	2,880
5	8	3	2,880	8	1*	2,880	8	1	2,880	8	1	2,880	8	1	2,880
6	8	3	2,880	8	1*	2,880	8	1*	(2,880)	8	1*	(2,880)	6	1*	(2,880)
7	8	2	2,880	8	1*	2,880	8	3	(3,200)	8	1	(3,200)	6	1*	(3,200)
8	8	3	2,880	8	1*	2,880	8	1*	(2,880)	6	1*	(2,880)	6	1*	(2,880)
9	8	3	2,880	8	1	2,880	8	1*	(2,880)	6	1*	(2,880)	6	1*	(2,880)
10	8	3	2,880	8	2	3,200	8	1*	3,200	8	2	3,520	8	1*	3,520
11	8	2	2,880	8	3	3,200	8	1*	(3,200)	6	1*	(3,200)	6	1*	(3,200)
12	8	3	2,880	8	1*	2,880	8	2	3,200	8	1*	3,200	8	1*	(3,200)
13	8	3	2,880	8	1*	2,880	8	1*	(2,880)	6	1*	(2,880)	6	1*	(2,880)
14	8	3	2,880	8	1*	2,880	8	1*	2,880	8	2	3,200	8	1*	3,200
15	8	2	2,880	8	2	3,200	8	3	3,520	6	1*	(3,520)	6	1*	(3,520)
Average			2,880			2,965			3,129			3,200			3,120
Range			0			320			640			640			640

[1]Goal numbers shown are defined as follows:
Goal 6 - to increase net worth, and
Goal 8 - to make the most annual profit.

[2]Plan numbers are associated with the following strategies:
Plan 1 - no change in size; Plan 2 - rent an additional 320 acres; and Plan 3 - buy an additional 320 acres.
An asterisk (*) indicates Plan 1 was selected by default because the satisficing level(s) of one or more primary goals is not met by any of the plans included.

[3]Observations enclosed in parentheses are associated with firms that have encountered bankruptcy, and they are not used in computing average size. Thus, average size refers to the average size of viable firms.

in years 14 and 18. Although high stability is observed with respect to the top-ranked goal, the strategies employed by various replicates does vary. In year 2, five replicates rent additional acreage, and ten replicates select the purchase alternative. In year 10, two replicates rent, two replicates buy, and eleven replicates follow the no-change strategy. The implementation of the no-change alternative in years 6 and 10, as well as the two later decision years, occurs because borrowing needs of the included plans violate the specified satisficing level. Three of the six solvent replicates in year 14 choose to adopt the rental strategy. In year 18, all four solvent replicates are forced to implement the no-change strategy. Average farm size of the solvent replicates in year 18 is 3,120 acres.

Comparison of Initial Age and Tenure Situations

Estimates of net farm income, consumption, and net worth over the 20-year planning horizon are summarized by replicate for the six situations with a starting farm size of 2,560 acres in Appendix D, Tables LXXXIII through C.

Net Farm Income. Average net farm income estimates for the six situations under consideration are presented in Table XXX. As a basis for discussion, it should be recalled that the 45-year-old full owner expanded farm size only one time and that each replicate chose to rent additional land. The ultimate result was an average farm size of 2,880 acres in year 18 and an implied tenure status of a part owner for all replicates. In the 25-year-old situation, several replicates selected one of the expansionary plans at each evaluation point which results in

TABLE XXX

AVERAGE NET FARM INCOME OF SOLVENT FIRMS OVER A 20-YEAR PLANNING HORIZON, BEGINNING FARM SIZE OF 2,560 ACRES, SPECIFIED INITIAL OPERATOR AGE AND TENURE SITUATIONS, SOUTH CENTRAL GREAT PLAINS

Year	25-Year-Old Operator				45-Year-Old Operator			
	Full Owner[1]	Part Owner[1]	Full Tenant A[2]	Full Tenant B[3]	Full Owner[1]	Part Owner[1]	Full Tenant A[2]	Full Tenant B[4]
	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
1	6,193	1,797	264	5,286	6,193	1,797	- 979	4,337
2	11,578	6,606	2,463	8,354	12,204	6,757	2,467	4,093
3	10,436	5,211	978	6,654	11,024	5,290	894	6,709
4	13,937	8,430	3,953	3,416	14,523	8,472	3,819	2,761
5	18,744	12,955	8,234	10,030	19,329	12,960	8,045	11,666
6	16,185	10,244	5,392	17,752	17,074	10,287	5,055	16,608
7	11,673	5,216	1,187	3,052	13,254	6,019	730	2,212
8	12,858	5,753	1,703	- 7,036	14,889	5,930	1,373	697
9	15,728	8,378	5,630	13,212	17,753	8,650	5,318	11,557
10	12,872	5,469	502	5,500	15,329	5,130	- 689	5,546
11	16,367	8,373	5,446	8,136	18,424	8,769	5,249	6,650
12	15,293	7,535	7,844	3,386	18,140	8,099	7,484	7,404
13	15,933	7,843	5,474	10,062	18,725	8,260	5,015	8,504
14	19,210	10,527	7,265	6,692	20,998	11,023	7,922	3,398
15	19,574	10,387	2,102	- 4,646	21,230	10,840	4,175	3,326
16	20,314	11,043	5,642	7,864	21,724	11,916	4,971	7,079
17	18,485	8,630	1,369	- 1,034	20,173	8,406	-1,240	3,880
18	22,975	12,210	6,402	3,892	22,630	11,865	5,105	7,458
19	17,004	5,760	701	701	17,472	7,214	1,736	5,195
20	22,358	10,872	3,936	3,936	22,081	12,251	5,686	5,686

[1]All averages are based on fifteen replicates since no bankruptcies occur during the 20-year planning horizon.

[2]Averages in this column are based on the number of solvent replicates in each year. Therefore, the number of observations may vary from year to year.

[3]Averages in this column are based on two replicates that remain solvent over the entire 20-year planning horizon.

[4]Averages in this column are based on three replicates that remain solvent over the entire 20-year planning horizon.

average farm size continually increasing over the planning horizon and reaching 3,755 acres in year 18.

Even though average net farm income for these two situations is fairly chose in the early years of the planning horizon, the absolute level of net farm income for the 45-year-old full owner's situation equals or exceeds that of the 25-year-old in 18 of the 20 years simulated. This implies that income from additional acreage operated by the younger farm operator is generally more than offset by the associated costs. The interaction of several variables is apparently responsible for this relationship. The younger operator hires annual labor and seasonal labor as farm size increases. However, the older operator only has to hire a relatively small amount of seasonal labor throughout the planning horizon since farm size does not increase. As the younger operator's farm size increases, property taxes and additional interest resulting from higher capital needs also increase. It is difficult to generalize using the average net farm income levels since so many variables are influential and individual replicate data tends to confound the problem of interpretation.

Only slight differences are observed between the two part owner situations because operators in both age brackets follow essentially the same expansion pattern (both have an average farm size of 3,456 acres in year 18).

In the two full tenant situations, replicates that remain solvent throughout the planning horizon all purchase land in one of the decision years. Therefore, the implied tenure status of all "successful" replicates at the end of the planning horizon has changed from full tenant to part owner. Although the length of time survived varies, five

replicates in the 25-year-old's situation retain a tenure status of full tenant until bankruptcy is encountered. The 45-year-old situation has a larger average farm size in year 18 (3,120 acres compared to 2,960 acres for the 25-year-old). However, average farm size during the first half of the planning horizon is essentially equivalent. The most apparent difference in average net farm income occurs between the "A" and "B" averages within each operator-age category. Generally speaking, averages based on replicates that survived the entire planning horizon experience higher net farm incomes. Thus, these replicates are able to remain solvent when low crop yields occur. Major differences that are observed across age categories are functions of the firm's debt structure and land-equity position at that point in time.

Consumption. Average consumption for each of the six situations is presented in Table XXXI. The number of dependents, total income, and the ending net worth from the previous production period are once again the key variables that affect the consumption levels. Generally, the estimates shown tend to follow the expected patterns. For example, consumption levels tend to increase as the number of dependents and/or farm size (reflected by total income) increase. Differences observed between the two age categories for a given tenure situation and in a given year are primarily attributable to the existing difference in the number of dependents. However, in situations where differences in average farm size are relatively large, the lower total income on the smaller size farm will be reflected in lower consumption levels (e.g., compare the two full owner situations in year 20 where a difference in size accounts for approximately $800 of the difference observed in consumption levels).

TABLE XXXI

AVERAGE CONSUMPTION LEVELS FOR SOLVENT FIRMS OVER A 20-YEAR PLANNING HORIZON, BEGINNING FARM SIZE OF 2,560 ACRES, SPECIFIED INITIAL OPERATOR AGE AND TENURE SITUATIONS, SOUTH CENTRAL GREAT PLAINS

Year	25-Year-Old Operator				45-Year-Old Operator			
	Full Owner[1]	Part Owner[1]	Full Tenant[2] A	Full Tenant[3] B	Full Owner[1]	Part Owner[1]	Full Tenant[2] A	Full Tenant[4] B
	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
1	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000
2	7,541	7,495	7,450	7,502	8,797	8,751	8,706	8,750
3	8,031	7,984	7,937	8,171	8,659	8,612	8,564	8,801
4	8,375	8,327	8,278	7,962	9,003	8,954	8,906	8,501
5	9,121	9,059	9,020	9,048	8,559	8,442	8,392	8,399
6	9,162	9,158	9,000	10,440	8,405	8,530	8,380	9,610
7	8,804	8,801	8,693	8,813	7,495	7,545	7,446	7,539
8	9,026	8,981	8,920	8,296	7,690	7,726	7,676	7,633
9	9,253	9,199	9,218	9,785	7,901	7,944	8,044	8,176
10	8,974	8,802	8,639	8,849	7,446	7,597	7,457	7,431
11	9,463	9,270	9,150	9,836	7,747	8,041	8,075	8,296
12	9,240	9,040	9,172	8,740	7,680	7,849	8,032	7,723
13	9,149	9,065	8,958	9,424	7,641	7,816	7,807	7,964
14	9,441	9,232	9,087	9,382	7,613	8,001	8,234	8,025
15	9,632	9,346	8,804	8,464	7,822	8,035	8,012	7,687
16	9,674	9,462	9,053	9,657	7,723	8,265	8,055	8,423
17	9,709	9,438	8,773	8,902	7,663	8,250	7,670	7,883
18	9,874	9,492	8,974	8,712	7,684	8,189	7,671	7,717
19	9,861	9,469	9,154	9,154	7,532	8,234	7,970	8,192
20	9,863	9,630	9,230	9,230	7,651	8,382	8,072	8,072

[1]All averages are based on fifteen replicates since no bankruptcies occur during the 20-year planning horizon.

[2]Averages in this column are based on the number of solvent replicates in each year. Therefore, the number of observations may vary from year to year.

[3]Averages in this column are based on two replicates that remain solvent over the entire 20-year planning horizon.

[4]Averages in this column are based on three replicates that remain solvent over the entire 20-year planning horizon.

Net Worth. Table XXXII summarizes the estimates of average net worth for the six situations with a starting farm size of 2,560 acres over the 20-year planning horizon. In comparing average net worth for the two full owner situations, one finds that the average ending net worth for the older operator is about $39,000 greater than that of the 25-year-old operator. Every replicate of the 45-year-old's situation has a higher ending net worth than the corresponding replicate in the 25-year-old's situation. Consumption patterns between the two age categories must be considered since funds withdrawn from the cash flow for family consumption are not available for reinvestment and since these withdrawals also tend to slow the rate of cash accumulation (which is listed as an asset in the net worth statement). Net farm income is also an important factor that must be considered. When all variables are considered, the major implication is that increasing consumption levels and a simultaneous increase in capital needs resulting from decisions to increase farm size tend to slow down the 25-year-old operator's accumulation of net worth. Since the 45-year-old operator only expanded one time (early in the planning horizon), he is able to accumulate cash when years with good yields occur. This cash accumulation accounts for most of the increase in net worth experienced by the older operator. Cash accumulation as such accounts for a smaller proportion of the increase in net worth observed in the 25-year-old's situation.

Average net worth in the two part owner situations increases continually during the latter half of the planning horizon. Once again, the 45-year-old's situation has a higher ending net worth in all replicates than does the 25-year-old's situation. The higher consumption

TABLE XXXII

AVERAGE NET WORTH OF SOLVENT FIRMS OVER A 20-YEAR PLANNING HORIZON, BEGINNING FARM SIZE OF 2,560 ACRES, SPECIFIED INITIAL OPERATOR AGE AND TENURE SITUATIONS, SOUTH CENTRAL GREAT PLAINS

Year	25-Year-Old Operator				45-Year-Old Operator			
	Full Owner[1]	Part Owner[1]	Full Tenant A[2]	Full Tenant B[3]	Full Owner[1]	Part Owner[1]	Full Tenant A[2]	Full Tenant B[4]
	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
1	278,890	160,155	41,742	47,302	279,423	160,245	41,796	46,640
2	283,665	161,156	39,235	49,808	283,797	160,809	38,179	44,435
3	287,214	160,556	34,825	50,143	287,383	159,273	33,135	44,319
4	293,176	162,280	32,904	47,978	293,301	160,540	30,548	41,257
5	301,592	166,835	33,750	50,584	302,825	165,568	31,745	45,642
6	309,101	169,175	32,283	57,744	310,894	168,432	30,523	52,608
7	313,760	167,780	28,751	54,406	316,958	168,176	27,616	49,812
8	317,926	166,538	25,513	42,576	324,011	168,456	25,150	45,188
9	323,741	167,308	29,509	46,678	332,990	170,069	29,641	49,362
10	329,125	166,094	24,220	45,648	340,608	170,068	27,543	49,632
11	335,349	166,817	24,764	45,913	350,105	172,096	26,704	49,952
12	341,045	166,872	29,519	43,298	359,325	173,508	33,056	51,423
13	347,792	167,364	28,370	45,411	369,354	175,782	33,858	56,755
14	356,270	169,730	30,410	44,449	380,757	177,588	35,980	50,640
15	364,594	171,857	26,254	34,640	392,399	182,457	40,414	48,229
16	374,575	174,574	25,149	34,718	404,407	186,772	39,329	48,555
17	382,603	175,392	20,474	28,142	415,280	189,446	33,267	47,029
18	393,293	178,929	16,788	26,002	427,815	194,750	41,264	48,591
19	399,762	177,156	20,808	20,808	436,984	195,123	37,572	47,817
20	410,308	179,519	18,026	18,026	449,226	199,576	47,560	47,560

[1]All averages are based on fifteen replicates since no bankruptcies occur during the 20-year planning horizon.

[2]Averages in this column are based on the number of solvent replicates in each year. Therefore, the number of observations may vary from year to year.

[3]Averages in this column are based on two replicates that remain solvent over the entire 20-year planning horizon.

[4]Averages in this column are based on three replicates that remain solvent over the entire 20-year planning horizon.

levels observed in the 25-year-old's situation appear to be the major culprit for reasons cited earlier for similar situations.

The younger full tenant situation has an ending net worth of less than half the initial net worth level (only 2 replicates survive the entire planning horizon). The likelihood of continued survival does not appear to be very high. This situation is the only one in this study in which the average ending net worth of solvent replicates is lower than the average initial levels. In the 45-year-old full tenant situation, solvent replicates essentially just survive over the period simulated.

A general concluding comment is that net worth levels are higher for full owners than for either part owners or tenants; part owner situations have higher net worth levels than the full tenant situations. This same relationship was observed in the 1,600-acre farm situations, and the part owners in this situation have higher net worth levels than full tenants for similar reasons, i.e., average farm size increases for the part owner situations are larger over the 20-year planning horizon.

Table XXXIII summarizes initial and ending net worth levels, total change in net worth over the planning horizon, and the average annual change in net worth for the situations having a starting farm size of 2,560 acres. The general relationship observed is that situations with higher initial land-equity positions exhibit higher rates of growth in terms of average annual increases in net worth. The surviving replicates in the 25-year-old full tenant situation are experiencing declining net worth. Even though they survived the 20-year period simulated, chances for remaining solvent in following years do not appear very promising unless several successive years of good

TABLE XXXIII

SUMMARY OF AVERAGE INITIAL AND ENDING NET WORTH POSITIONS AND CHANGES IN NET WORTH OVER A 20-YEAR PLANNING HORIZON FOR SITUATIONS WITH A STARTING FARM SIZE OF 2,560 ACRES

Situation Identification	Average Initial Net Worth	Average Ending Net Worth	Total Change in Average Net Worth	Average Annual Change in Net Worth
	Dollars	Dollars	Dollars	Dollars
25-Year-Old Operator				
Full Owner[1]	278,890	410,308	131,418	6,571
Part Owner[1]	160,155	179,519	19,364	968
Full Tenant "A"[2]	41,742	18,026	-23,716	-1,186
Full Tenant "B"[3]	47,302	18,026	-29,276	-1,464
45-Year-Old Operator				
Full Owner[1]	279,423	449,226	169,803	8,490
Part Owner[1]	160,245	199,576	39,331	1,967
Full Tenant "A"[2]	41,796	47,560	5,764	288
Full Tenant "B"[4]	46,640	47,560	920	46

[1]All averages are based on fifteen replicates since no bankruptcies occur during the 20-year planning horizon.

[2]These averages are based on the number of solvent replicates in each year (i.e., in years 1 and 20). Therefore, the number of observations underlying the average at these two points in the planning horizon are different.

[3]Averages are based on two replicates that are solvent for the entire 20-year planning horizon.

[4]Averages are based on three replicates that are solvent for the entire 20-year planning horizon.

crop yields are encountered. The surviving replicates in the 45-year-old full tenant situations essentially just survive over the planning horizon and do not exhibit any significant growth tendencies.

CHAPTER V

EVALUATION OF THE STUDY

The purpose of this chapter is to evaluate this study with respect to the approach used and the results obtained. The first part of the chapter focuses on whether or not the objectives of the research effort (as stated in Chapter I) are fulfilled. The second section of the chapter includes a discussion of the implications and limitations of the results presented in Chapter IV.

Both the review of literature (in Chapter I) and the conceptual development (Chapter II) indicate that frequent criticism has been leveled at the assumption of a single goal to be maximized or minimized when firm-oriented problems are being analyzed. Although various approaches have been devised to recognize that more than one goal may affect a firm's decision-making framework, emphasis has been placed on how a choice between specific strategies (e.g., land purchases, financial management, etc.) affects the growth process with respect to growth rate and total capital accumulation over time. Little attention has been given to the effects of multiple goals on the decision-making process itself and the resulting effects on firm survival and growth. Thus, the central focus of this study was to incorporate multiple goals into the decision-making framework and to observe the effects in selected situations.

The study takes as given the selection of goals and the estimation of goal hierarchies by Harman, et al.,[1] and no discussion is included concerning the predictive ability of equations used to estimate scale values for the eight included goals. However, one must realize that the primary concern in developing the equations was strictly to provide a means of predicting a hierarchy of goals.

Evaluation with Respect to Objectives

This study had three specific objectives. The first objective was to construct a simulation model that included four major characteristics: (1) used multiple goals in decision-making, (2) provided alternative strategies, (3) allowed for stochastic crop yields, and (4) related family consumption to farm receipts. The second objective was to simulate selected representative farm situations subject to different assumptions with respect to initial tenure, farm size, and farm operator characteristics. The third objective was to determine the effects of different starting positions on goal hierarchies, net farm income, net worth, and rates of firm survival and growth.

Objective 1

An existing simulation routine was modified to include the four characteristics specified in this objective. It was necessary to create the capability of using an external data file to furnish some data not generated by the simulator. The existing simulator allowed for stochastic yields. Thus, the major modifications were concerned with the other three desired characteristics. Subroutines were written to include the estimation of scale values for each goal, to rank goals

based on estimated scale values, and to separate goals into primary and secondary groups for use in decision-making. Four alternative strategies were developed, and decision rules to use in choosing between strategies were specified. A consumption function estimated from farm survey data was written into the simulator. The completion of these steps fulfilled the first objective.

Objective 2

Several steps were necessary in order to satisfy this objective. Representative farm situations were delineated based on census data and farm survey data. Some of the individual factors considered were farm size in acres, proportion of cropland, proportion of land owned, and crop allotments. Enterprise budgets were developed, and starting farm organizations were determined. Farm survey data were used to develop farm operator characteristics such as educational level, years of farming experience, number of dependents, debt levels, asset levels, and off-farm income. Based on data developed, eighteen situations were identified (2 starting ages of operator, 3 tenure or initial land-equity positions, and 3 starting farm sizes). Each situation was simulated for 20 years and was replicated fifteen times. The completion of these simulation runs satisfies the second objective.

Objective 3

Estimated net farm income, consumption, net worth, and total acres operated were summarized for each year of the planning horizon for all replicates in each situation. Replicate data were used to estimate the mean, standard deviation, maximum, minimum, and range for each year.

In addition, the top-ranked goal and the strategy selected were summarized for each replicate in the five specified decision years for all situations. Comparisons across starting ages, initial land-equity positions, and beginning farm sizes partially fulfill this objective. Net worth was used to indicate survival and growth. The number of replicates that encountered bankruptcy was used to estimate survival capabilities, and change in net worth over the planning horizon was used to measure firm growth. This part of the analysis fulfilled the remaining portion of the third objective.

Evaluation and Implication of the Results

Survival Capability and Potential Firm Growth

Given the basic assumptions and limitations of the multiple-goal decision-making approach used in this study, several factors appear to be key variables affecting the survival capability and growth potential of farms in the area. No tests of significance have been applied to the factors discussed below, and order of discussion is not meant to imply a relative degree of importance.

First, the starting age of the operator was identified as a possible key variable. However, the results presented in Chapter IV indicate relatively small differences in either average farm size or ending net worth that can be attributed to the operator's starting age (comparing across ages within size and initial tenure situations). In addition, only small differences occur in survival rates across age categories in the situations that include bankrupt replicates. Operator age is an included variable in five of the eight equations used to estimate scale

values for goals (see Appendix A) and is one of the variables in the consumption function. Therefore, the impact of operator age is limited to effects directly attributable to the goal hierarchy or to consumption expenditures which reduce the quantity of capital available for reinvestment or accumulation.

Initial tenure status (land-equity position) has a more pronounced impact on survival and growth. This is especially true in the situations with starting farm sizes of 960 and 2,560 acres with respect to survival capability. In terms of survival, none of the situations with an initial tenure of full owner include replicates that encounter bankruptcy, and only one part owner situation includes a bankrupt replicate. The situations for the largest and smallest beginning farm sizes with an initial tenure of full tenant (no initial land equity) exhibit low rates of survival in terms of replicates that survive for the entire 20-year planning horizon.

Differences that can be explained strictly by initial farm size are difficult to isolate. The more important factor appears to be the percentage of cropland. The importance of cropland is directly tied to the government programs assumed (if more cropland is operated, higher total government payments are received). The level of payments on farms with relatively more cropland helps offset the effects of low crop yields early in the planning horizon, thus enhancing the chance of survival. In years where firm survival is not a problem, higher rates of government payments simply furnish additional funds that can be reinvested in the farm business.

Yield variability plays a very definite role in both survival and growth. The effects of low crop yields on net farm income are apparent,

especially in the estimates for each replicate included in Appendix D. Simulation results indicate that a sequence of high or low yields may have a greater impact on the firm's survival capability and growth potential than the absolute levels of crop yields in a particular year or average yields over a 20-year period.

Frequency of Selection of Alternative Strategies

Percentage distributions for strategy selections are shown in Table XXXIV. Based on a total of 270 decisions made in each decision year (18 situations times 15 replicates per situation), the land-rental strategy is clearly dominant in year 2. All fifteen replicates in twelve of the eighteen situations chose plan 2. The selection of the no-change strategy in year 2 occurs in the 1,600-acre, full owner situations. In the other decision years, the rental alternative is chosen less frequently and reaches a low point of 19.6 percent of the decisions in year 18. The land purchase alternative is chosen more frequently in the latter half of the planning horizon.

The major disturbing factor is the frequency of defaults in the last four decision years. In terms of total decisions made over the entire planning horizon, the default option represents slightly more than one third (about 36 percent). It is difficult to assess the total impact that defaults had on survival capability, growth rates, and total capital accumulation. However, the number of defaults emphasize the need for trade-off criteria and/or basic changes in some of the decision rules built into the simulator. The satisficing levels associated with two goals (reduce borrowing needs and increase leisure time) account for almost all of the defaults that occur. The relative

TABLE XXXIV

SUMMARY OF STRATEGY SELECTIONS IN DECISION YEARS
AS A PERCENT OF TOTAL DECISIONS PER YEAR

Strategy Chosen[1]	Percent of Total Choices by Decision Year[2]				
	Year 2	Year 6	Year 10	Year 14	Year 18
	Percent	Percent	Percent	Percent	Percent
Plan 1 by choice	3.0[3]	13.7[4]	5.9[5]	13.3[6]	8.5[7]
Plan 1 by default	0.0	28.1	44.5	24.8	38.5
Plan 2	83.7	48.1	27.4	24.1	19.6
Plan 3	13.3	9.3	22.2	37.0	33.0
Plan 4	0.0	0.8	0.0	0.8	0.4
Total	100.0	100.0	100.0	100.0	100.0

[1]Alternative strategies in each of the 18 situations simulated are defined as follows:
Plan 1--no change in farm size;
Plan 2--rent an additional 320 acres;
Plan 3--buy an additional 320 acres; and
Plan 4--replace 320 acres of rented land by purchasing 320 acres.

[2]Across the eighteen situations with fifteen replicates in each situation, a total of 270 decisions are made in each decision year. Percentages shown are calculated by dividing the total number of times each plan was selected by 270.

[3]Actual choice between all four strategies; based on a dominant goal of avoid being forced out of business.

[4]Out of 37 choices, 13 are between plans 1 and 4; 4 are between plans 1 and 2; and in 21 only plan 1 meets all required satisficing levels.

[5]Out of 16 choices, 2 are between plans 1 and 4; 1 is between plans 1 and 2; and in 13 only plan 1 meets all required satisficing levels.

[6]Out of 36 choices, 10 are between plans 1 and 4; 1 is between plans 1 and 2; and in 25 only plan 1 meets all required satisficing levels.

[7]Out of 23 decisions, 14 are between plans 1 and 4; and in 9 plan 1 only meets all required satisficing levels.

infrequency of choice for Plan 4 indicates that results would not be significantly affected if this strategy were eliminated.

General Limitations of the Multiple-Goal Approach

The basic assumptions of the multiple-goals approach are that the decision-maker has a hierarchy of goals (identification and ranking are possible) and each goal in the hierarchy has a related, quantifiable satisficing level. The major advantage of the approach used in this study is that the goal hierarchy can change over time in response to changing family and operator characteristics and to changing economic conditions (reflected through prices used and financial characteristics of the firm). In addition, the approach used allows the relative importance of an operator's goals to change over time and provides for changes in the relevant set of decision-controlling goals.

A major shortcoming of the approach used in this study, as well as the multidimensional utility concept, is that trade-off or substitution between goals is not acknowledged. From the standpoint of computer programming, trade-off criteria between goals are possible. However, the determination and quantification of these criteria for the problem under study may prove to be extremely difficult. One related consideration is whether or not the addition of trade-off criteria will affect the cost associated with running the operational model.

Extreme care must be taken in selecting goals to be used. Relevant goals that can be quantified must be chosen. If goals are highly intercorrelated, several problems are likely to be encountered if a multiple-goal approach is undertaken. First, responses from a sample

of individuals representing the population being studied are likely to provide inconclusive results and to prove difficult to use in estimating goal hierarchies.

Another consideration with respect to goal selection is the determination of goals that are likely to result in the same decision if a multiple-goal, decision-making process is being developed. For example, in the majority of situations simulated in this study, essentially the same decisions would have been made if the decision-controlling goal were either to avoid years of low profits or losses, to increase net worth, or to maximize annual profits. These results indicate how critical the definition of strategy decision values and satisficing levels are in a multiple-goals approach. The same type of consideration must be given to goals that are likely to be restrictive in nature at given decision points. In this study, the goals of reducing borrowing needs and avoid being forced out of business reacted together in a restrictive capacity in several situations. The strategy decision values of both goals reflect the firm's debt level and the satisficing levels of both are defined to act as safeguards against overextension with respect to credit use.

Given that appropriate goals are selected and that the associated hierarchies can be estimated, another critical step in a multiple-goals analysis is the development of relevant plans or strategies from which a decision-maker can select. These strategies will necessarily be dependent on the objectives of the research effort and on the problem area defined. For example, if the emphasis of the research is strictly in the area of financial management, a set of alternative

tax-management strategies may be the most appropriate strategies to consider.

Several limitations are associated with the alternative plans or strategies that are included. All plans either maintain status quo or increase total acres operated. There is no disinvestment allowed with respect to land, brood cows, or machinery even if such a strategy would allow the firm to survive. In addition, fully-depreciated machinery items used by enterprises in the farm organization must be replaced (purchased at new cost) in the next production period regardless of the financial condition of the firm. This requirement does not reflect the flexibility that a farm operator has with respect to delaying purchases of machinery when his financial condition indicates that such a strategy is advantageous. The land purchase plan has somewhat of an advantage over the land rental plan if the firm has excess cash and if satisficing levels are not restrictive. This advantage occurs because there is no "opportunity cost" charges for using owned capital to purchase land. A related assumption is that land is available to rent or purchase (in 320 acre increments) at a constant price level over the full 20-year planning horizon, and no land appreciation is included in net worth.

The selection and specification of decision rules is important if logically consistent results are expected. In this study, a strategy is chosen if it maximizes or minimizes the dominant (top-ranked) goal and if it meets the satisficing levels of all primary goals. If all strategies violate one or more of the satisficing levels of primary goals, the decision-maker defaults to the no-change strategy. The fact to be recognized is that a goal ranked relatively low in the

hierarchy may actually control the decision. However, if all satisficing levels are met by all strategies, the top-ranked goal will also be the decision-controlling goal. This may suggest a need for satisficing levels to possess some degree of flexibility.

Other Limitations of the Study

Other general assumptions must also be considered as limitations. Product prices, input prices, and the yield levels used in plan evaluations are not trended but are assumed to remain constant over the period simulated. Off-farm income was held constant across years and across situations. Although its behavior in the simulator tends to follow expected patterns, the consumption function used in this study could stand improvement.

Summary Comments

The development and use of a multiple-goal, decision-making framework includes many pitfalls and limitations. However, the author's conclusion based on this study is that such an approach does provide needed information with respect to survival capability and growth potential of farm firms. The most critical points in such a study are associated with goal selection and evaluation and with the development of relevant strategies available to the decision-maker. Primary concern in terms of this study centers around the relatively high frequency of defaults to the no-change strategy.

An operational model designed to be representative of the real world faced by decision-makers will necessarily by very complex. A researcher can expect to encounter difficult problems in the areas

of collecting needed data and in developing and debugging the ultimate model. A research institution embarking on a project of this type must be prepared to invest ample time and money if successful results are to be obtained.

FOOTNOTES

[1]Wyatte L. Harman, et al., An Evaluation of Factors Affecting the Hierarchy of Multiple Goals, Oklahoma Agricultural Experiment Station Technical Bulletin T-134 (June, 1972).

CHAPTER VI

SUMMARY

The central objective of this study was to determine the impact of selected factors on the survival capability and growth potential of dryland, cash grain-livestock farms in the south central Great Plains. The specific factors identified as major variables were the goals of farm operators, crop yield variability (represented by variable net farm income), farm family consumption, and initial starting positions with respect to farm size, age of operator, and land-equity positions (or tenure status). Net worth was used to define the point of bankruptcy and to measure firm growth.

The analytical procedure chosen was to construct a simulation model that would allow for stochastic yields, that would relate family consumption to farm receipts, and that would specify alternative strategies available for implementation by the farm operator. A goal hierarchy was estimated for each production period based on farm and farm operator characteristics, including some characteristics that were generated by the simulator and some characteristics that were supplied by an external data file. In specified "decision years", the choice between strategies was made by maximizing (or minimizing) the top-ranked goal subject to meeting specified satisficing levels for all primary goals.

The area delineated for study includes eight counties in the northern high plains of Texas, the three Oklahoma Panhandle counties, eight counties in southwestern Kansas, and two counties in southeastern Colorado. Wheat, sorghums, hay crops, and assorted feed grains are the major cropping alternatives in the study area. Predominant livestock systems include both stocker and cow-calf enterprises. Eighteen situations were delineated to represent existing farm size and land distributions, tenure or land-equity positions, and operator ages. Two starting ages for the farm operator (25 and 45 years old) and three initial land-equity positions (full owner, part owner, and full tenant) were simulated for each of the three starting farm sizes (960, 1,600, and 2,560 acres).

Results

The primary function of the simulator was to represent a farm business (with a starting state defined by input data) as it is operated over time. Alternative strategies were evaluated five times (years 2, 6, 10, 14, and 18) during a 20-year planning horizon. The evaluation of strategies and the choice of a strategy to follow were based on expected or average yields specified as input data. After a strategy was selected, yields were determined stochastically for the actual year in which the chosen plan was implemented. Therefore, within each actual production period (or year), the simulator served the purpose of summarizing the financial condition of the firm, prices, yields, total production, an inventory of available resources, and the current set of family characteristics.

Each of the eighteen situations were replicated fifteen times. One or more replicates in five situations encountered bankruptcy during the planning horizon. All results discussed for these five situations are presented in terms of the average of the replicates that remained solvent throughout the entire planning horizon. Results for the other thirteen situations are the average of the fifteen replicates simulated (since all replicates were solvent for the full 20-year period).

960-Acre Farm Situations

Three situations with this starting farm size include one or more replicates that encounter bankruptcy during the planning horizon. Bankruptcies occur in both situations that have an initial tenure status of a full tenant (no land equity) and also in one replicate of the 25-year-old part owner.

Only two of the eight goals (make the most annual profit and avoid years of low profits or losses) are dominant in decision years for the 25-year-old full owner situation. The goal of increasing leisure time is the sole member of the secondary group of goals throughout the planning horizon. Based on strategies selected in the five decision years, average farm size increased from 960 to 2,283 acres during the planning horizon, and the implied tenure status of all replicates changed from full owner to part owner.

Three goals attain the dominant position in the 45-year-old full owner situation; in addition to the goals identified for the 25-year-old, to increase net worth is the top-ranked goal for some replicates. The leisure time goal is secondary through year 5 but is replaced as the only secondary goal by controlling more acres in years 6 through 20.

Average farm size increases to 1,621 acres over the planning horizon. This smaller increase, relative to that observed for the younger operator occurs because the satisficing level for increasing leisure time is restrictive and activates the default option rather frequently. The implied tenure status for all replicates in the 45-year-old situation also switches to part owner.

The three goals that are dominant for the 45-year-old full owner are also dominant for the 25-year-old part owner. Leisure time is a secondary goal for the 25-year-old throughout the planning horizon. The initial tenure status of the farm operator (part owner) remains unchanged throughout the planning horizon for all replicates, and average farm size increases to 2,011 acres.

In the 45-year-old part owner situation, avoiding years of low profits or losses is the top-ranked goal for all replicates in the first decision year. Making the most annual profit is the dominant goal for all replicates in each of the four remaining decision years. Leisure time is a secondary goal through year 13 but is replaced by controlling more acres in most replicates during the last seven years of the planning horizon. Average farm size increases to 1,621 acres, and initial tenure status remains unchanged.

Increasing net worth and making the most annual profit are top-ranked goals in the 25-year-old full tenant situation. Bankruptcy occurs in a number of replicates, and only four replicates survive for the entire 20-year planning horizon. For these four replicates, average farm size increases to 2,400 acres. Three replicates retain the initial tenure status of full tenant, and one replicate enters the part owner classification.

The same two dominant goals (net worth and profit) also occur in the 45-year-old full tenant situation. However, five replicates survive the entire planning horizon. One replicate remains a full tenant, and the other four switch to a tenure status of part owner. Average farm size for the "successful" replicates increases to 2,304 acres.

In the six situations with a beginning farm size of 960 acres, average net farm income varies from - $1,465 to $19,236. This variation reflects the effects of stochastic yields and the general financial condition of firms in specific replicates. Two variables in the consumption function, total income and the number of dependents, explain most of the fluctuation observed in average consumption levels. The $6,000 consumption specified as data in year 1 is the lowest average consumption level observed. With respect to average net worth, full owner situations show greater increases over the planning horizon, and part owner situations exhibit the smallest total increase in net worth. Relatively small differences are observed when a comparison of increases in net worth is made across age categories for the same initial size and tenure situations.

1,600-Acre Farm Situations

Four different goals are dominant at various times during the planning horizon for the 25-year-old full owner. In addition to the three goals identified in the 960-acre farm situations, to avoid being forced out of business is top-ranked in four replicates in the first decision year. Average farm size increases from 1,600 to 3,115 acres over the 20-year planning horizon. All replicates have an implied

tenure status of part owner by year 6. In years 10, 14, and 18, the strategy chosen by all replicates is to purchase an additional 320 acres.

The 45-year-old full owner situation has the same set of dominant goals as the younger operator. However, strategy selections differ primarily because the satisficing level for leisure time is restrictive. Thus, average farm size only increases to 2,837 acres. The tenure status for all replicates does change to part owner.

Maximizing annual profit, increasing net worth and avoiding years of low profits or losses are the only goals that occupy the dominant position in the 25-year-old part owner situation. The land-purchase strategy is selected by all replicates in the last two decision years, and average farm size increases to 3,179 acres. The initial tenure status (part owner) remains unchanged for all replicates throughout the planning horizon.

The set of dominant goals observed for the 45-year-old part owner situation includes increasing net worth, making the most annual profit, and reducing borrowing needs. Due to slight differences in strategies selected by various replicates, the ending average farm size of 3,093 acres is smaller than the ending size in the 25-year-old's situation. Once again, the initial tenure status remains unchanged.

In the 25-year-old full tenant situation, increasing net worth is dominant more frequently than the other two goals of the dominant set (make the most annual profit and avoid years of low profits or losses). Average farm size increases to 3,136 acres over the 20-year planning horizon, and all replicates switch to a tenure of part owner.

The goal of maintaining or increasing family living (consumption) is the top-ranked goal for the first time in the 45-year-old full tenant situation. Maximizing annual profit is dominant for all replicates in year 2. However, in the other four decision years, increasing net worth appears in the dominant position more frequently. All replicates change to a tenure status of part owner, and average farm size increases to 3,157 acres.

All replicates in each of the six situations remain solvent throughout the planning horizon. Average net farm income of full owners is higher than that of part owners, and the net farm income of part owners always exceeds the incomes of full tenants. This relationship holds for every year of the planning horizon. Major differences observed in consumption levels for full owner and part owner situations across age categories are attributable to differences in the number of dependents and in total income resulting from farm size differences. In comparing the full tenant situations across ages, major differences in consumption are explained by the number of dependents in a given year. The largest total increases in net worth during the planning horizon occur in the full owner situations, and the smallest increases occur in the full tenant situations. Comparisons across age categories with given initial tenure classifications do not reveal any large differences.

2,560-Acre Farm Situations

Avoiding years of low profits or losses and increasing net worth are the only two members of the set of dominant goals for the 25-year-old full owner situation. Based on strategies chosen in the five

decision years, the tenure status of all replicates changes to part owner, and average farm size increases to 3,755 acres.

Only two goals are included in the dominant set for the 45-year-old full owner situation (to increase net worth and to make the most annual profit). All replicates rent additional acreage in the first decision year, and default to the no-change strategy in the other four decision years because none of the alternative plans can meet the satisficing requirement for the leisure time goal. Thus, average farm size only increases to 2,880 acres. However, tenure status does change from full owner to part owner.

The 25-year-old part owner situation is somewhat unique. The goal of avoiding low profits or losses is the top-ranked goal for every replicate in each of the five decision years. Average farm size increases to 3,456 acres over the 20-year planning horizon. The rental strategy is the most frequently selected. However, a relatively large number of defaults to the no-change plan also occur because the satisficing level for reducing borrowing needs is restrictive. The initial tenure status of part owner remains unchanged during the period simulated.

The 45-year-old part owner situation has to increase net worth and to make the most annual profit as members of the set of dominant goals. The satisficing level for reducing borrowing needs is primarily responsible for the defaults to the no-change alternative that occur. The initial tenure status of part owner remains unchanged, and average farm size increases to 3,456 acres during the 20-year planning horizon.

In the 25-year-old full tenant situation, the goal of controlling more acres joins the two goals identified in the previous situation

in the set of dominant goals. All replicates increase farm size in the first decision year. However, the default option is activated frequently in the last four decision years because borrowing needs are too high. Average farm size only increases to 2,960 acres. Ten replicates have a tenure status of part owner, and five replicates remain in the full tenant category throughout the planning horizon.

The dominant set of goals for the 45-year-old full tenant situation includes only increasing net worth and making the most annual profit. The profit goal is dominant much more frequently throughout the planning horizon. The default options that occur are again attributable to high levels of borrowing needs. All fifteen replicates change to a tenure status of part owner, and average farm size increases to 3,120 acres.

Bankruptcies do occur in both of the full tenant situations. Two replicates survive in the 25-year-old situation, and three replicates remain successful for the entire planning horizon in the 45-year-old situation. Average net farm incomes do not vary greatly when compared across age categories. Replicates that survive throughout the planning horizon generally have higher net farm incomes than the replicates in which bankruptcy occurred. Average consumption tends to follow expected patterns, i.e., increase as the number of dependents and/or farm size (reflected by total income) increase and vice versa.

When average net worth is compared across age categories for the full owner situations, all fifteen replicates in the 45-year-old's situation have a higher ending net worth than corresponding replicates in the younger operator's situation. Increasing consumption levels and a simultaneous increase in capital needs resulting from decisions

to increase farm size tend to slow down the 25-year-old's accumulation of net worth. Average net worth for both part owner situations increases continually during the latter half of the planning horizon. However, the older operator once again has a higher ending net worth. The younger full tenant has an ending net worth of less than half the initial level, and the likelihood of firm survival does not appear to be very high. In the 45-year-old full tenant situation, the solvent replicates essentially just survive over the period simulated.

Need for Further Research

This study evaluates the survival capability and growth potential of dryland farms by simulating farm operations for a 20-year planning horizon using a multiple-goal, decision-making framework. Because emphasis was placed on the incorporation of multiple goals, the effects of relatively few variables on survival and growth were investigated. Given a workable model that assumes multiple goals, many questions are left unanswered. For example, what are the effects of planning horizons of different length? What is the impact of different-size land increments associated with expansion strategies on survival rates and the growth process?

Results of this study indicate other variables that may play very important roles in terms of firm survival and growth. More alternatives need to be investigated with respect to financial strategies that are available to the farm operator. One example is to get cash flow variables defined and simulated on a quarterly basis so that decision criteria can be tied closer to actual cash flow patterns. Another example is to incorporate rules for replacement of fully-depreciated

machinery that would allow the purchase of new machinery to be delayed if net worth, the debt-asset ratio, or absolute levels of borrowing needs indicated the firm could benefit financially from such action. The possibility of incorporating a linear programming model that can be used to maximize or minimize numerous objective functions for each year of a multiperiod run should not be overlooked. A detailed study of the relationships of farm firm growth to capital structure (loan limits and interest rates) and to managerial ability would be useful to economists, policymakers, and lending institutions. Although many problems require knowledge of quantitative and qualitative relationships between such variables, little of the needed information is available. In addition, the possible effects of varying levels of off-farm income are in need of research attention.

As has been alluded to in earlier chapters, perhaps the most pressing need for further research is associated with the identification and measurement of relevant goals that may have an effect on the survival capability and growth potential of farm firms. Additional work is needed on the methodology for data collection and improvement in using multiple goals in decision-making models. A last word of caution is that such models are likely to be so complex that the researcher must remember that the ultimate results will be only as good as the weakest segment of the total research package.

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APPENDIX A

EQUATIONS USED TO ESTIMATE SCALE VALUES FOR GOALS OF THE FARM OPERATOR

This appendix specifies the set of equations that are used in the simulator to estimate scalar values for each goal. In estimating the equations, only linear and quadratic forms were considered, and cross-products were limited to linear forms. All beta coefficients were required to be significant at the 5 percent level. The definitions of variables and the estimated equations are shown below.

Definition of Dependent Variables:

Y_1 = control more acres;

Y_2 = avoid being forced out of business;

Y_3 = maintain or increase family living;

Y_4 = avoid low profits or losses;

Y_5 = increase leisure time;

Y_6 = increase net worth;

Y_7 = reduce borrowing needs; and

Y_8 = make the most annual profit.

Definition of Independent Variables:

X_1 = age of the farm operator in years;

X_2 = farming experience in years;

X_3 = tenure status of farm operator where 1 = owner operator, 2 = part owner, and 3 = full tenant;

X_4 = educational level of the farm operator where 0 = incomplete high school, 1 = incomplete high school and complete vocational school, 2 = completed high school only, 3 = complete high school and vocational school, 4 = completed one year of college, 5 = two years of college, 6 = three years of college, 7 = four

years of college, and 8 = more than four years of college;

X_5 = acres of cropland in the farming operation;

X_6 = acres of total land in the farming operation;

X_7 = total farm income where 0 = less than \$1,000, 1 = \$1,000 to \$4,999, 2 = \$5,000 to \$9,999, 3 = \$10,000 to \$19,999, 4 = \$20,000 to \$39,999, 5 = \$40,000 to \$69,999, 6 = \$70,000 to \$99,999, 7 = \$100,000 to \$139,999, 8 = \$140,000 to \$179,999, and 9 = \$180,000 and over;

X_8 = net off-farm income (coded like X_7);

X_9 = assets (coded in hundreds of dollars);

X_{10} = debts (coded in hundreds of dollars);

X_{11} = number of dependents;

X_{12} = acres of owned land;

X_{13} = acres of owned cropland;

X_{15} = net worth (or $X_9 - X_{10}$);

X_{16} = debt-asset ratio (or X_{10}/X_9);

X_{17} = proportion of land owned (or X_{12}/X_6); and

X_{18} = proportion of cropland owned (or X_{13}/X_5).

Regression Equations Used to Estimate Scale Values:

$$\hat{Y}_1 = 23.603 - 0.009X_1^2 - 1.079X_4^2 + 0.012X_6 + 0.038X_9 - 1.850X_{11}^2 - 0.033X_{12} - 0.036X_{15} + 39.162X_{17}^2 - 5.037X_3X_8 + 8.325X_3X_{11} + 4.170X_4X_8 - 0.006X_5X_{11} - 0.016X_8X_9 + 3.445X_8X_{11} + 0.019X_8X_{15} - 0.00000979X_9X_{12} + 0.004X_{11}X_{12} + 0.0000123X_{12}X_{15}$$

$$\hat{Y}_2 = 73.334 - 0.007X_1 - 0.008X_5 - 0.00000016X_9^2 + 23.839X_{18}^2 - 5.531X_4X_{18} + 0.002X_5X_8$$

$$\hat{Y}_3 = 74.379 - 26.667X_8 + 0.045X_9 - 0.06X_{12} + 0.0000018X_{12}^2 - 0.031X_{15} - 19.801X_{16} + 0.51X_1X_8 - 0.012X_3X_9 + 0.02X_3X_{12} + 0.002X_4X_{12} + 0.004X_{11}X_{13}$$

$$\hat{Y}_4 = -43.445 + 25.327X_3 - 0.027X_9 + 0.00000969X_{10}^2 + 12.741X_{11} - 0.745X_{11}^2 + 0.074X_{12} - 0.10X_{13} + 0.052X_{15} + 48.258X_{16} + 60.60X_{17} + 0.002X_1X_{12} + 0.002X_1X_{13} + 0.00001098X_5X_{13} + 0.00000419X_6X_9 + 0.00000X_6X_{13} + 0.012X_6X_{16} + 0.003X_9X_{11} + 0.00000419X_9X_{15}$$

$$\hat{Y}_5 = -202.69 + 3.673X_2 - 0.045X_2^2 + 148.216X_3 - 30.859X_3^2 - 0.033X_5 + 0.00000769X_5^2 + 12.498X_7 - 1.361X_7^2 + 0.008X_9 - 0.00000041X_9^2 - 97.646X_{17} + 112.092X_{17}^2 - 2.21X_2X_{16} + 11.067X_4X_{17} - 8.852X_4X_{18} + 7.593X_7X_{16} - 0.015X_9X_{17} + 0.014X_{15}X_{18}$$

$$\hat{Y}_6 = 85.985 - 1.321X_1 + 1.490X_2 + 19.512X_4 - 1.191X_4^2 + 0.009X_6 - 1.311X_8^2 - 216.732X_{16} + 55.888X_{16}^2 + 16.139X_{18}^2 - 0.221X_1X_{11} + 5.956X_1X_{16} + 0.0005056X_2X_5 - 0.0004322X_2X_6 + 0.0001906X_2X_9 - 6.029X_2X_{16} - 3.755X_3X_4 + 2.786X_3X_{11} - 0.029X_5X_{17}$$

$$\hat{Y}_7 = 69.207 + 0.00000208X_5 - 0.01X_6 - 2.293X_8 + 0.018X_{12} - 0.005X_{15} - 28.392X_{17}^2 + 0.004X_6X_8$$

$$\hat{Y}_8 = 158.33 - 38.38X_3 - 1.340X_7^2 - 13.950X_{11} + 1.3X_{11}^2 + 0.00000523X_{12}^2 - 208.47X_{17} + 232.41X_{17}^2 + 158.66X_{18} + 6.210X_3X_7 + 45.1X_8X_{17} - 47.68X_8X_{18} + 0.00000223X_9X_{12} + 0.004X_{11}X_{12} - 213.35X_{17}X_{18}$$

APPENDIX B

INPUT DATA USED IN THE FARM SIMULATOR

TABLE XXXV

INPUT ALLOWANCES FOR DRYLAND CASH GRAIN LIVESTOCK FARMS, SOUTH CENTRAL GREAT PLAINS

	Item	Unit	18	19	20	21	22	23	24
			Enterprise						
			Sm. Gr. Pasture	Wheat	Grain Sorghum	Native Pasture	Stockers 4	Stockers 5	Cow-Calf
1.	Labor 1 (March-May)	hours			0.45		1.62	0.72	4.56
2.	Labor 2 (June-July)	hours	0.38	0.11	0.76				0.92
3.	Labor 3 (Aug.-Sept.)	hours	0.34	0.28					0.36
4.	Labor 4 (Oct.-Feb.)	hours		0.08			2.04	2.04	5.32
5.	Dryland Cropland	acres	1.00	1.00	1.00				
6.	Native Pasture	acres				1.00			
7.	Cows 1	head							1.00
8.	Irrigated Cropland	acres							
9.	Small Grain Pasture 2	AUM					1.60		
10.	Nat. Past. 1 (Oct. 15-Apr.15)	AUM					0.50	0.50	4.00
11.	Nat. Past. 2 (Apr. 15-Oct.15)	AUM							9.36
12.	Small Grain Pasture 1	AUM					1.30	1.20	
13.	Set-Aside Cropland	acres	1.00						
14.	Cash Costs	dol.	3.35	8.77	9.27	0.50	19.31	15.91	27.39
15.	Farm Overhead	dol.							
24.	Large Tractor	hours	0.35	0.22	0.36				
25.	Medium Tractor	hours	0.32	0.11	0.64				
26.	Small Tractor	hours	0.10	0.10					
27.	Dry Fertilizer Spreader	hours							
28.	Tandem Disc	hours	0.09		0.09				
29.	Offset Disc	hours			0.23				
30.	Sweeps	hours	0.22	0.20					
31.	Chisel	hours	0.10		0.10				
32.	Grain Drill	hours	0.10	0.10					
33.	Lister-Planter	hours			0.25				
34.	Row Cultivator	hours			0.24				
35.	Rod Weeder	hours	0.09	0.09					
41.	Tool Bar	hours	0.10		0.10				
42.	Stockers 4	head					1.00		
43.	Stockers 5	head						1.00	

TABLE XXXVI

AVERAGE OUTPUT PER UNIT OF ACTIVITY AND PRODUCT PRICE INFORMATION FOR DRYLAND CASH GRAIN-LIVESTOCK FARMS, SOUTH CENTRAL GREAT PLAINS

	Item	Unit	18	19	20	21	22	23	24	25
			Enterprise							
			Sm. Gr. Pasture	Wheat	Grain Sorghum	Native Pasture	Stockers 4	Stockers 5	Cow-Calf	Average Price
1.	Grain Sorghum	cwt.			10.00					1.75
2.	Wheat	bu.		12.00						1.25
3.	Corn	bu.								1.10
4.	Small Grain Pasture I	AUM	0.25	0.25						
5.	Small Grain Pasture II	AUM	1.35							
6.	Native Pasture I (Oct. 15-April 15)	AUM			0.20	0.21				
7.	Native Pasture II (April 15-Oct. 15)	AUM				0.49				
8.	Stockers IV	cwt.					6.93			25.95
9.	Stockers V	cwt.						5.94		25.73
10.	Steer Calves (Oct. sale)	cwt.							2.112	27.23
11.	Steer Calves (July sale)	cwt.								28.00
12.	Heifer Calves (Oct. sale)	cwt.							1.162	24.42
13.	Heifer Calves (July sale)	cwt.								25.38
14.	Cull Cows	cwt.							1.182	14.84
15.	Set-Aside Payment	dol.								

TABLE XXXVII

CHARACTERISTICS OF INPUT SERVICES FOR DRYLAND CASH GRAIN-LIVESTOCK FARMS, SOUTH CENTRAL GREAT PLAINS

	Item	1 Rental Rate	2 Purchase Cost	3 Units of Service Provided	4 Total Life	5 Security Class	7 Minimum Units of Purchase	8 Minimum Units of Rental	11 Property Tax on Real Estate	12 Insurance Cost per $ Value	15 Repair Cost (% purchase price)	16 Income Tax Rate
1.	Labor 1 (March-May)	2.50		1.	100.			8.				.1400
2.	Labor 2 (June-July)	2.50		1.	100.			8.				.1450
3.	Labor 3 (Aug.-Sept.)	2.50		1.	100.			8.				.1500
4.	Labor 4 (Oct.-Feb.)	2.50		1.	100.			8.				.1550
5.	Dryland Cropland	10.00	150.00	1.	100.	1.	1.		.008			.1620
6.	Native Pasture	3.00	100.00	1.	100.	1.	1.		.008			.1667
7.	Cows 1		265.20	1.	100.	2.	1.					.1700
8.	Irrigated Cropland	25.00	275.00	1.	100.	1.	1.		.008			.1725
9.	Small Grain Pasture 2	8.00		1.								.1778
10.	Nat. Past. 1 (Oct 15-Apr 15)	5.00		1.								.1820
11.	Nat. Past. 2 (Apr 15-Oct 15)	5.00		1.								.1855
12.	Small Grain Pasture 1	8.00		1.								.1883
13.	Set-Aside Cropland			1.		1.	1.					.1930
14.	Cash Costs	1.00		1.								.1971
15.	Farm Overhead			1.	100.						3,121.50[a]	.2007
24.	Large Tractor		13,255.00	600.	10.	2.	1.	4.	.01	.006		.2358
25.	Medium Tractor		11,530.00	600.	10.	2.	1.	4.	.01	.006		.2409
26.	Small Tractor		7,100.00	600.	10.	2.	1.	4.	.01	.006		
27.	Dry Fertilizer Spreader	13.00	500.00	50.	10.	2.	1.	4.	.01	.006		
28.	Tandem Disc	14.55	1,300.00	150.	10.	2.	1.	4.	.01	.006		
29.	Offset Disc	6.00	2,600.00	100.	10.	2.	1.	4.	.01	.006		
30.	Sweeps	7.15	2,900.00	100.	10.	2.	1.	4.	.01	.006		
31.	Chisel	13.80	1,400.00	125.	10.	2.	1.	4.	.01	.006		
32.	Grain Drill	11.40	1,300.00	100.	10.	2.	2.	4.	.01	.006		
33.	Lister-Planter	6.00	3,360.00	100.	10.	2.	1.	4.	.01	.006		
34.	Row Cultivator	4.70	1,600.00	150.	8.	2.	1.	4.	.01	.006		
35.	Rod Weeder	14.55	2,150.00	100.	10.	2.	1.	4.	.01	.006		
41.	Tool Bar		1,250.00	600.	10.	2.	1.	4.	.01	.006		
42.	Stockers 4	102.11		1.		2.	1.					
43.	Stockers 5	102.11		1.		2.	1.					

[a] See overhead costs for various farm sizes.

TABLE XXXVIII

STANDARD DEVIATION IN PRODUCTION FOR DRYLAND CASH GRAIN-LIVESTOCK FARMS
SOUTH CENTRAL GREAT PLAINS

		18	19	20	21	22	23	24
		Enterprise						
Item	Unit	Sm. Gr. Pasture	Wheat	Grain Sorghum	Native Pasture	Stockers 4	Stockers 5	Cow-Calf
1. Grain Sorghum	cwt.			7.28				
2. Wheat	bu.		7.55					
3. Corn	bu.							
4. Small Grain Pasture I (to March 1)	AUM	.16	.16					
5. Small Grain Pasture II (Graze-out)	AUM	.83						
6. Native Pasture I (Oct. 15-April 15)	AUM				.412			
7. Native Pasture II (April 15-Oct. 15)	AUM				.60			
8. Stockers 4	cwt.							
9. Stockers 5	cwt.							
10. Steer Calves (Oct. sale)	cwt.							
11. Steer Calves (July sale)	cwt.							
12. Heifer Calves (Oct. sale)	cwt.							
13. Heifer Calves (July sale)	cwt.							
14. Cull Cows	cwt.							
15. Set-Aside Payment	dol.							

TABLE XXXIX

LIMIT TO THE NUMBER OF STANDARD DEVIATIONS IN PRODUCTION FOR DRYLAND CASH GRAIN-LIVESTOCK FARMS, SOUTH CENTRAL GREAT PLAINS

			18	19	20	21	22	23	24
			Enterprise						
	Item	Unit	Sm. Gr. Pasture	Wheat	Grain Sorghum	Native Pasture	Stockers 4	Stockers 5	Cow-Calf
1.	Grain Sorghum	cwt.			2.0				
2.	Wheat	bu.		2.0					
3.	Corn	bu.							
4.	Small Grain Pasture I	AUM	1.0	1.0					
5.	Small Grain Pasture II	AUM	1.0						
6.	Native Pasture I (Oct. 15-April 15)	AUM				1.0			
7.	Native Pasture II (April 15-Oct. 15)	AUM				1.0			
8.	Stockers 4	cwt.							
9.	Stockers 5	cwt.							
10.	Steer Calves (Oct. sale)	cwt.							
11.	Steer Calves (July sale)	cwt.							
12.	Heifer Calves (Oct. sale)	cwt.							
13.	Heifer Calves (July sale)	cwt.							
14.	Cull Cows	cwt.							
15.	Set-Aside Payment	dol.							

COMPUTATION OF GOVERNMENT PAYMENTS

FOR A 960-ACRE FARM

Loan Rates:

Wheat = $1.68/bu.
Grain sorghum = $.68/cwt.

Allotments:

Wheat = 113 acres
Feed grains = 126 acres
Total allotment to protect = 239 acres

Set-Aside Requirements:

113 X .83 = 94 acres
126 X .25 = 32 acres
Total 126 acres

Additional Set-Aside:

113 X .75 = 85 acres
126 X .10 = 13 acres
Total 98 acres

Payment Levels for Additional Set-Aside:
Wheat = $.94/bu.
Feed Grains = $.875/cwt.

Estimated Payments:

Wheat Certificates:	(1.68) (12) (113)	=	$2,278.08
Feed Grains :	(.68) (.5) (10) (126)	=	428.40
Total			$2,706.48

Set-Aside:

Wheat :	(.94) (12) (85)	=	$ 958.80
Feed Grains :	(.875) (10) (13)	=	113.75
Total			$1,072.55

Total Government Payments = $3,779.03

Farm Organization:

Wheat = 352 acres
Small Grain Pasture = 224 acres
Total Cropland 576 acres

Payment/ac. of Wheat = $7.6889
Payment/ac. of Small Grain Pasture = $4.7882

COMPUTATION OF GOVERNMENT PAYMENTS

FOR A 1,600-ACRE FARM

Loan Rates:

Wheat = $1.68/bu.
Grain Sorghum = $.68/cwt.

Allotments:

Wheat = 318 acres
Feed Grains = 238 acres
Total Allotment to Protect = 556 acres

Set-Aside Requirements:

318 X .83 = 264 acres
238 X .25 = 60 acres
Total 324 acres

Additional Set-Aside:

318 X .75 = 238 acres
238 X .10 = 24 acres
Total 262 acres

Payment Levels for Additional Set-Aside:
Wheat = $.94/bu.
Feed Grains = $.875/cwt.

Estimated Payments:

Wheat Certificates:	(1.68) (12) (318)	=	$6,410.88
Feed Grains :	(.68) (.5) (10) (238)	=	809.20
Total			$7,220.08

Set-Aside:

Wheat :	(.94) (12) (238)	=	$2,684.64
Feed Grains:	(.875) (10) (24)	=	210.00
Total			$2,894.64

Total Government Payments = $10,114.72

Farm Organization:

Wheat = 678 acres
Small Grain Pasture = 586 acres
Total Cropland 1,264 acres

Payment/ac. of Wheat = $10.6491
Payment/ac. of Small Grain Pasture = $ 4.9397

COMPUTATION OF GOVERNMENT PAYMENTS

FOR A 2,560-ACRE FARM

Loan Rates:

Wheat = $1.68/bu.
Grain Sorghum = $.68/cwt.

Allotments:

Wheat = 235 acres
Feed Grains = 217 acres
Total Allotment to Protect = 452 acres

Set-Aside Requirements:

235 X .83 = 195 acres
217 X .25 = 54 acres
Total 249 acres

Additional Set-Aside:

235 X .75 = 176 acres
217 X .10 = 22 acres
Total 198 acres

Payment Levels for Additional Set-Aside:
Wheat = $.94/bu.
Feed Grains = $.875/cwt.

Estimated Payments:

Wheat Certificates:	(1.68) (12) (235)	= $4,737.60
Feed Grains :	(.68) (.5) (10) (217)	= 737.80
Total		$5,475.40

Set-Aside:

Wheat :	(.94) (12) (176)	= $1,985.28
Feed Grains:	(.875) (10) (22)	= 192.50
Total		$2,177.78

Total Government Payments = $7,653.18

Farm Organization:

Wheat = 602 acres
Small Grain Pasture = 448 acres
Total Cropland 1,050 acres

Payment/ac. of Wheat = $9.09535
Payment/ac. of Small Grain Pasture = $4.8611

TABLE XL

ESTIMATED ANNUAL OVERHEAD COSTS FOR DRYLAND FARMS, SOUTH CENTRAL GREAT PLAINS STUDY AREA

Item	Annual Cost for Dryland Farms by Size		
	960 Acre Farm	1,600 Acre Farm	2,560 Acre Farm
	Dollars	Dollars	Dollars
Depreciation and Maintenance			
Buildings:			
Machine Storage and Shop	264.00	264.00	264.00
Grain Storage	55.00	55.00	55.00
Barn	157.50	157.50	157.50
Livestock Equipment:			
Permanent Fencing	230.00	230.00	905.00
Temporary Fencing	40.00	65.00	65.00
Salt Box, Corral, Loading Chute, Water Tanks, etc.	25.00	25.00	35.00
Livestock Trailer (18 ft.)	185.00	185.00	185.00
Saddle Horses	100.00	100.00	150.00
Machinery Fixed Costs			
Fuel Storage Tank	15.00	15.00	15.00
Shop Tools	50.00	50.00	50.00
Grain Auger	35.00	35.00	35.00
Irrigation Pipe Trailer (20 ft.)	-	-	-
Pickup ("new")	1,400.00	1,800.00	2,300.00
Pickup ("old")	-	-	-
Miscellaneous			
Telephone	100.00	100.00	100.00
Bookkeeping and Tax Service	50.00	50.00	75.00
Insurance on Buildings and Workers	125.00	125.00	125.00
Electricity	240.00	240.00	240.00
Membership Dues, Magazines, etc.	50.00	50.00	75.00
Total Overhead Costs	3,121.50	3,546.50	4,831.50

APPENDIX C

RANDOM YIELDS DRAWN BY REPLICATE OVER THE 20-YEAR PLANNING HORIZON FOR INCLUDED CROP ENTERPRISES

TABLE XLI

SUMMARY OF RANDOM YIELDS DRAWN BY REPLICATE OVER THE 20-YEAR PLANNING HORIZON, WHEAT FOR GRAIN, SOUTH CENTRAL GREAT PLAINS

	Year									
Replication	1	2	3	4	5	6	7	8	9	10
1	21.97	4.01	4.53	5.60	16.64	12.51	19.74	20.51	10.80	0.00
2	4.08	23.59	2.11	5.70	15.37	17.42	11.58	9.82	19.05	6.54
3	5.85	23.05	16.45	20.09	18.80	15.28	0.00	9.99	4.81	6.67
4	16.18	11.46	19.22	4.31	9.54	11.65	0.12	14.57	11.89	15.72
5	18.58	4.20	15.17	14.96	18.98	13.51	5.48	19.37	19.37	22.45
6	13.83	13.10	10.64	5.48	9.82	24.10	23.73	5.69	11.71	13.81
7	3.69	11.17	6.34	9.24	8.97	4.74	10.57	7.11	19.34	20.15
8	23.70	13.81	14.00	14.12	3.95	8.75	6.85	9.46	6.48	8.07
9	10.19	9.58	1.46	8.07	25.51	13.09	15.45	3.46	0.00	14.78
10	18.31	15.18	20.90	23.26	10.90	14.74	5.93	10.97	13.94	15.76
11	2.04	13.00	14.35	2.68	4.69	23.72	3.51	18.13	8.08	9.75
12	24.45	3.76	16.80	17.88	6.66	0.00	7.67	9.20	7.62	1.75
13	14.30	9.71	10.07	13.12	15.24	6.47	12.77	10.35	8.26	0.00
14	25.60	18.86	0.00	9.77	20.15	15.40	19.02	4.18	19.90	14.07
15	8.87	6.44	14.44	8.42	18.08	21.28	12.78	13.48	13.02	9.74
Mean	14.11	12.06	11.10	10.85	13.55	13.51	10.35	11.09	11.62	10.62
Std. Dev.	8.02	6.29	6.73	6.16	6.30	6.74	7.08	5.25	5.97	6.90
Maximum	25.60	23.59	20.90	23.26	25.51	24.10	23.72	20.51	19.90	22.45
Minimum	2.04	3.76	0.00	2.68	3.95	0.00	0.00	3.46	0.00	0.00
Range	23.56	19.83	20.90	20.58	21.56	24.10	23.72	17.05	19.90	22.45

TABLE XLI (Continued)

	Year									
Replication	11	12	13	14	15	16	17	18	19	20
1	21.32	20.18	13.44	19.43	7.72	11.70	5.49	3.50	14.67	16.28
2	8.25	11.99	12.73	12.47	10.54	19.09	15.14	15.10	10.18	7.55
3	17.63	0.00	7.46	17.10	25.82	18.04	7.17	6.28	5.93	8.83
4	8.52	17.34	20.19	18.10	5.02	23.39	0.00	14.04	5.42	10.34
5	7.85	17.74	8.32	6.23	15.47	3.73	10.31	16.77	15.52	8.49
6	5.84	11.36	0.54	17.09	9.83	13.47	16.31	15.97	0.79	18.76
7	19.92	5.83	12.72	19.59	17.01	16.06	5.14	24.52	1.40	21.45
8	3.25	4.45	20.09	14.01	8.23	10.14	16.22	8.17	20.81	16.44
9	1.95	18.91	4.07	14.05	15.14	5.74	14.85	19.67	18.59	8.52
10	9.26	20.76	21.73	18.59	8.63	13.93	4.03	12.46	5.12	3.87
11	6.96	6.15	12.16	26.54	19.54	6.83	5.53	17.60	12.79	19.49
12	16.08	6.39	8.67	14.09	9.60	16.94	22.71	14.97	0.00	8.91
13	10.17	9.14	13.83	10.47	8.81	9.31	8.76	13.60	18.29	12.52
14	2.39	2.87	15.64	4.55	7.58	9.18	8.66	12.06	12.73	15.54
15	9.83	0.00	11.26	10.10	23.01	11.05	5.34	25.46	14.26	13.93
Mean	9.95	10.21	12.19	14.83	12.80	12.57	9.71	14.68	10.43	12.73
Std. Dev.	6.14	7.30	5.89	5.63	6.22	5.43	6.10	6.00	6.88	5.14
Maximum	21.32	20.76	21.73	26.54	25.82	23.39	22.71	25.46	20.81	21.45
Minimum	1.95	0.00	0.54	4.55	5.02	3.73	0.00	3.50	0.00	3.87
Range	19.37	20.76	21.19	21.99	20.80	19.66	22.71	21.96	20.81	17.58

TABLE XLII

SUMMARY OF RANDOM YIELDS DRAWN BY REPLICATE OVER THE 20-YEAR PLANNING HORIZON, WHEAT GRAZING IN SEASON 1 (BEFORE MARCH 1), SOUTH CENTRAL GREAT PLAINS

	Year									
Replication	1	2	3	4	5	6	7	8	9	10
1	0.13	0.37	0.40	0.39	0.26	0.22	0.10	0.26	0.23	0.14
2	0.41	0.27	0.22	0.18	0.25	0.29	0.31	0.29	0.39	0.11
3	0.38	0.40	0.16	0.22	0.40	0.17	0.20	0.15	0.19	0.29
4	0.35	0.17	0.09	0.34	0.36	0.20	0.14	0.32	0.29	0.29
5	0.13	0.31	0.27	0.31	0.41	0.36	0.29	0.19	0.32	0.21
6	0.14	0.37	0.17	0.11	0.35	0.21	0.37	0.13	0.37	0.19
7	0.11	0.26	0.21	0.27	0.27	0.41	0.23	0.36	0.19	0.39
8	0.41	0.21	0.24	0.26	0.27	0.15	0.10	0.18	0.17	0.14
9	0.24	0.40	0.27	0.37	0.35	0.09	0.23	0.16	0.23	0.24
10	0.24	0.12	0.36	0.14	0.28	0.18	0.17	0.40	0.23	0.24
11	0.26	0.17	0.26	0.26	0.35	0.35	0.24	0.15	0.17	0.25
12	0.31	0.16	0.30	0.19	0.30	0.26	0.21	0.17	0.34	0.18
13	0.22	0.35	0.27	0.28	0.34	0.32	0.37	0.16	0.23	0.32
14	0.10	0.19	0.27	0.24	0.30	0.27	0.20	0.24	0.35	0.23
15	0.31	0.14	0.18	0.23	0.39	0.24	0.20	0.33	0.13	0.38
Mean	0.25	0.26	0.24	0.25	0.33	0.25	0.22	0.23	0.26	0.24
Std. Dev.	0.11	0.10	0.08	0.08	0.05	0.09	0.08	0.09	0.08	0.08
Maximum	0.41	0.40	0.40	0.39	0.41	0.41	0.37	0.40	0.39	0.39
Minimum	0.10	0.12	0.09	0.11	0.25	0.09	0.10	0.13	0.13	0.11
Range	0.31	0.28	0.31	0.28	0.16	0.32	0.27	0.27	0.26	0.28

TABLE XLII (Continued)

	Year									
Replication	11	12	13	14	15	16	17	18	19	20
1	0.25	0.20	0.23	0.11	0.29	0.24	0.25	0.37	0.32	0.38
2	0.20	0.33	0.36	0.17	0.39	0.15	0.32	0.22	0.20	0.11
3	0.13	0.25	0.37	0.19	0.13	0.15	0.13	0.26	0.14	0.13
4	0.26	0.18	0.33	0.14	0.22	0.19	0.28	0.27	0.13	0.23
5	0.38	0.16	0.17	0.13	0.37	0.19	0.28	0.26	0.25	0.16
6	0.18	0.21	0.19	0.24	0.24	0.22	0.28	0.25	0.28	0.32
7	0.34	0.32	0.26	0.24	0.18	0.25	0.29	0.21	0.37	0.28
8	0.28	0.32	0.32	0.37	0.15	0.09	0.36	0.18	0.23	0.26
9	0.14	0.[illegible]	0.37	0.36	0.39	0.20	0.36	0.10	0.14	0.18
10	0.33	0.39	0.11	0.12	0.39	0.39	0.30	0.25	0.16	0.26
11	0.20	0.27	0.41	0.23	0.10	0.17	0.15	0.32	0.36	0.23
12	0.21	0.38	0.31	0.32	0.26	0.24	0.37	0.38	0.24	0.16
13	0.29	0.22	0.10	0.26	0.38	0.36	0.32	0.40	0.31	0.19
14	0.28	0.40	0.14	0.16	0.23	0.21	0.28	0.37	0.22	0.14
15	0.23	0.12	0.15	0.26	0.16	0.32	0.37	0.30	0.36	0.10
Mean	0.25	0.27	0.25	0.22	0.26	0.22	0.29	0.28	0.25	0.21
Std. Dev.	0.07	0.09	0.11	0.08	0.10	0.08	0.07	0.08	0.08	0.08
Maximum	0.38	0.40	0.41	0.37	0.39	0.39	0.37	0.40	0.37	0.38
Minimum	0.13	0.12	0.10	0.11	0.10	0.09	0.13	0.10	0.13	0.10
Range	0.25	0.28	0.31	0.26	0.29	0.30	0.24	0.30	0.24	0.28

TABLE XLIII

SUMMARY OF RANDOM YIELDS DRAWN BY REPLICATE OVER THE 20-YEAR PLANNING HORIZON, SMALL GRAIN PASTURE IN SEASON 1 (BEFORE MARCH 1), SOUTH CENTRAL GREAT PLAINS

	Year									
Replication	1	2	3	4	5	6	7	8	9	10
1	0.18	0.29	0.30	0.13	0.14	0.12	0.17	0.32	0.36	0.37
2	0.30	0.27	0.28	0.39	0.11	0.25	0.13	0.15	0.30	0.31
3	0.36	0.18	0.10	0.33	0.32	0.17	0.38	0.13	0.15	0.34
4	0.22	0.11	0.27	0.32	0.16	0.16	0.35	0.17	0.40	0.14
5	0.34	0.30	0.35	0.40	0.36	0.26	0.22	0.17	0.12	0.11
6	0.21	0.26	0.09	0.28	0.20	0.15	0.29	0.26	0.13	0.30
7	0.29	0.33	0.41	0.26	0.14	0.11	0.14	0.14	0.13	0.36
8	0.11	0.11	0.20	0.17	0.29	0.35	0.20	0.28	0.22	0.38
9	0.21	0.14	0.38	0.29	0.36	0.13	0.22	0.26	0.31	0.36
10	0.09	0.36	0.28	0.33	0.39	0.38	0.17	0.21	0.33	0.13
11	0.15	0.27	0.14	0.35	0.10	0.13	0.26	0.34	0.13	0.32
12	0.21	0.25	0.22	0.37	0.26	0.22	0.20	0.20	0.20	0.12
13	0.19	0.18	0.15	0.20	0.13	0.18	0.35	0.21	0.33	0.28
14	0.31	0.41	0.30	0.40	0.37	0.36	0.33	0.40	0.19	0.30
15	0.22	0.35	0.34	0.13	0.21	0.18	0.38	0.31	0.18	0.35
Mean	0.23	0.25	0.25	0.29	0.24	0.21	0.25	0.24	0.23	0.28
Std. Dev.	0.08	0.09	0.10	0.09	0.11	0.09	0.09	0.08	0.10	0.10
Maximum	0.38	0.41	0.41	0.40	0.39	0.38	0.38	0.40	0.40	0.38
Minimum	0.09	0.11	0.09	0.13	0.10	0.13	0.13	0.13	0.12	0.11
Range	0.27	0.30	0.32	0.27	0.29	0.27	0.25	0.27	0.28	0.27

TABLE XLIII (Continued)

	Year									
Replication	11	12	13	14	15	16	17	18	19	20
1	0.18	0.40	0.25	0.21	0.19	0.13	0.35	0.25	0.18	0.32
2	0.30	0.34	0.14	0.22	0.14	0.20	0.39	0.16	0.31	0.33
3	0.10	0.33	0.34	0.10	0.13	0.16	0.28	0.40	0.17	0.28
4	0.20	0.32	0.38	0.27	0.25	0.32	0.35	0.17	0.33	0.30
5	0.20	0.34	0.12	0.20	0.23	0.15	0.26	0.32	0.40	0.37
6	0.39	0.28	0.22	0.16	0.40	0.30	0.41	0.35	0.14	0.30
7	0.39	0.16	0.16	0.12	0.23	0.26	0.22	0.11	0.11	0.28
8	0.15	0.36	0.27	0.12	0.15	0.14	0.36	0.13	0.35	0.19
9	0.31	0.18	0.16	0.26	0.19	0.31	0.18	0.19	0.35	0.13
10	0.11	0.12	0.27	0.36	0.35	0.29	0.24	0.31	0.19	0.30
11	0.37	0.30	0.19	0.26	0.28	0.14	0.10	0.18	0.24	0.21
12	0.31	0.17	0.16	0.29	0.40	0.33	0.21	0.26	0.26	0.24
13	0.24	0.38	0.20	0.38	0.17	0.29	0.25	0.31	0.09	0.32
14	0.22	0.36	0.31	0.29	0.35	0.39	0.16	0.39	0.27	0.33
15	0.25	0.27	0.09	0.28	0.10	0.21	0.37	0.37	0.28	0.32
Mean	0.25	0.29	0.22	0.23	0.24	0.24	0.28	0.26	0.24	0.28
Std. Dev.	0.09	0.09	0.08	0.08	0.10	0.08	0.09	0.10	0.09	0.06
Maximum	0.39	0.40	0.38	0.38	0.40	0.39	0.41	0.40	0.40	0.37
Minimum	0.10	0.12	0.09	0.10	0.10	0.13	0.10	0.11	0.09	0.13
Range	0.29	0.28	0.29	0.28	0.30	0.26	0.31	0.29	0.31	0.24

TABLE XLIV

SUMMARY OF RANDOM YIELDS DRAWN BY REPLICATE OVER THE 20-YEAR PLANNING HORIZON, SMALL GRAIN PASTURE, GRAZEOUT (SEASON 2, AFTER MARCH 1), SOUTH CENTRAL GREAT PLAINS

	Year									
Replication	1	2	3	4	5	6	7	8	9	10
1	1.93	1.05	0.79	2.12	2.02	1.21	1.08	1.09	1.87	1.86
2	1.06	0.90	1.46	1.67	1.86	1.98	0.63	2.15	1.12	0.56
3	0.54	1.06	0.66	1.85	1.12	1.07	1.23	2.07	1.50	1.69
4	1.90	0.65	1.71	1.82	1.81	1.08	1.18	2.09	2.05	1.61
5	1.04	1.47	1.57	0.79	1.67	2.05	1.51	2.04	1.22	0.70
6	1.03	0.75	0.91	1.46	1.14	1.16	1.61	1.11	0.81	1.33
7	1.41	1.95	0.85	1.00	1.75	1.43	0.87	1.02	1.80	1.88
8	1.71	0.77	0.65	0.81	0.87	1.50	0.89	1.91	2.12	0.80
9	0.75	0.85	0.78	1.80	1.84	0.61	1.50	1.21	1.26	0.68
10	1.54	1.55	1.35	1.22	1.94	2.08	1.48	0.71	1.60	1.03
11	1.25	2.18	1.19	2.11	1.29	0.82	1.13	0.66	2.18	1.77
12	0.93	1.77	0.59	2.13	1.89	1.97	2.02	0.63	1.49	1.22
13	1.01	1.61	1.97	0.83	0.91	0.74	1.48	0.54	0.73	1.16
14	1.24	1.19	1.84	0.96	1.11	2.09	1.51	0.90	2.12	1.74
15	1.02	1.12	1.68	1.25	1.94	0.98	0.90	1.52	1.15	0.57
Mean	1.22	1.26	1.20	1.45	1.54	1.38	1.27	1.31	1.53	1.24
Std. Dev.	0.40	0.47	0.48	0.51	0.42	0.53	0.36	0.60	0.48	0.50
Maximum	1.93	2.18	1.97	2.13	2.02	2.09	2.02	2.15	2.18	1.88
Minimum	0.54	0.65	0.59	0.79	0.87	0.61	0.63	0.54	0.73	0.56
Range	1.39	1.53	1.38	1.34	1.15	1.48	1.39	1.61	1.45	1.32

TABLE XLIV (Continued)

	Year									
Replication	11	12	13	14	15	16	17	18	19	20
1	1.60	1.80	1.24	1.38	1.92	1.04	0.78	1.21	0.94	1.75
2	1.48	2.02	1.47	0.61	0.91	1.94	1.77	0.76	1.64	1.74
3	1.30	1.80	0.70	1.00	2.04	1.30	1.88	1.07	0.71	2.05
4	1.64	1.08	1.36	1.69	1.68	1.34	1.77	1.51	1.19	0.99
5	1.83	1.85	1.63	0.77	1.95	1.65	1.76	1.42	1.80	1.38
6	1.52	0.57	0.79	2.04	1.11	1.52	1.14	1.71	0.70	1.50
7	1.46	1.52	1.01	0.67	1.90	0.87	1.62	1.50	1.93	1.08
8	2.00	0.54	1.36	0.90	1.82	0.94	1.51	0.62	1.48	0.58
9	1.12	1.89	1.85	0.57	1.11	1.90	1.25	0.65	1.64	0.65
10	2.10	1.31	1.02	1.87	0.77	2.06	1.68	1.47	1.82	1.90
11	0.72	1.95	0.97	1.38	1.00	1.67	1.01	2.17	1.59	1.40
12	2.01	1.54	1.74	2.04	0.80	1.67	1.62	1.98	1.29	1.81
13	1.67	1.71	1.94	1.04	1.60	1.65	1.79	1.39	0.90	1.21
14	1.94	1.36	2.11	1.06	1.16	1.21	1.44	1.16	1.50	1.32
15	0.99	0.66	1.29	1.42	0.61	0.79	1.52	1.31	0.83	1.63
Mean	1.56	1.44	1.37	1.23	1.36	1.44	1.50	1.33	1.33	1.40
Std. Dev.	0.40	0.51	0.43	0.51	0.50	0.40	0.32	0.44	0.42	0.44
Maximum	2.10	2.02	2.11	2.04	2.04	2.06	1.88	2.17	1.93	2.05
Minimum	0.72	0.54	0.70	0.57	0.61	0.79	0.78	0.62	0.70	0.58
Range	1.38	1.48	1.41	1.47	1.43	1.27	1.10	1.55	1.23	1.47

TABLE XLV

SUMMARY OF RANDOM YIELDS DRAWN BY REPLICATE FOR GRAZING NATIVE PASTURE IN SEASON 1 (OCTOBER TO APRIL), SOUTH CENTRAL GREAT PLAINS

	Year									
Replication	1	2	3	4	5	6	7	8	9	10
1	0.22	0.00	0.21	0.33	0.24	0.00	0.28	0.00	0.50	0.32
2	0.00	0.19	0.26	0.08	0.58	0.00	0.43	0.00	0.39	0.53
3	0.55	0.00	0.34	0.35	0.02	0.22	0.23	0.00	0.00	0.51
4	0.25	0.02	0.00	0.18	0.00	0.42	0.30	0.00	0.50	0.04
5	0.04	0.05	0.12	0.59	0.14	0.10	0.51	0.00	0.02	0.35
6	0.35	0.10	0.01	0.52	0.42	0.28	0.28	0.26	0.10	0.03
7	0.56	0.39	0.04	0.28	0.36	0.00	0.47	0.00	0.08	0.35
8	0.59	0.01	0.00	0.37	0.34	0.00	0.05	0.26	0.56	0.00
9	0.52	0.20	0.51	0.60	0.41	0.05	0.17	0.24	0.20	0.39
10	0.40	0.00	0.00	0.00	0.03	0.27	0.00	0.39	0.00	0.19
11	0.00	0.08	0.22	0.00	0.13	0.49	0.19	0.24	0.13	0.09
12	0.10	0.14	0.32	0.13	0.16	0.15	0.02	0.32	0.00	0.07
13	0.00	0.25	0.27	0.07	0.26	0.07	0.51	0.60	0.00	0.19
14	0.12	0.35	0.19	0.15	0.10	0.02	0.00	0.00	0.36	0.31
15	0.04	0.15	0.46	0.49	0.43	0.47	0.30	0.00	0.05	0.56
Mean	0.25	0.13	0.20	0.28	0.24	0.17	0.25	0.15	0.19	0.26
Std. Dev.	0.23	0.13	0.17	0.21	0.18	0.18	0.18	0.19	0.21	0.19
Maximum	0.59	0.39	0.51	0.60	0.58	0.49	0.51	0.60	0.56	0.56
Minimum	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Range	0.59	0.39	0.51	0.60	0.58	0.49	0.51	0.60	0.56	0.56

TABLE XLV (Continued)

	Year									
Replication	11	12	13	14	15	16	17	18	19	20
1	0.37	0.60	0.00	0.00	0.00	0.49	0.00	0.24	0.62	0.14
2	0.44	0.13	0.00	0.27	0.00	0.17	0.28	0.24	0.00	0.09
3	0.39	0.03	0.19	0.14	0.34	0.23	0.13	0.25	0.41	0.61
4	0.15	0.59	0.13	0.31	0.60	0.03	0.56	0.32	0.00	0.14
5	0.00	0.00	0.00	0.39	0.34	0.14	0.45	0.00	0.05	0.23
6	0.16	0.35	0.31	0.20	0.38	0.22	0.32	0.28	0.23	0.00
7	0.20	0.00	0.29	0.51	0.49	0.27	0.12	0.00	0.43	0.20
8	0.42	0.01	0.08	0.06	0.25	0.47	0.42	0.14	0.15	0.61
9	0.00	0.06	0.02	0.61	0.00	0.54	0.47	0.44	0.03	0.42
10	0.26	0.00	0.00	0.39	0.04	0.44	0.11	0.40	0.53	0.30
11	0.00	0.60	0.14	0.07	0.00	0.20	0.00	0.00	0.44	0.37
12	0.00	0.14	0.38	0.61	0.25	0.04	0.25	0.53	0.00	0.11
13	0.00	0.05	0.37	0.20	0.48	0.35	0.57	0.15	0.00	0.39
14	0.41	0.44	0.35	0.02	0.60	0.00	0.03	0.17	0.00	0.38
15	0.00	0.44	0.00	0.60	0.01	0.25	0.02	0.01	0.10	0.47
Mean	0.19	0.23	0.15	0.29	0.25	0.26	0.25	0.21	0.20	0.30
Std. Dev.	0.18	0.24	0.15	0.22	0.23	0.17	0.21	0.17	0.22	0.19
Maximum	0.44	0.60	0.38	0.61	0.60	0.54	0.57	0.53	0.62	0.61
Minimum	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Range	0.44	0.60	0.38	0.61	0.60	0.54	0.57	0.53	0.62	0.61

TABLE XLVI

SUMMARY OF RANDOM YIELDS DRAWN BY REPLICATE FOR GRAZING NATIVE PASTURE IN SEASON 2 (APRIL TO OCTOBER), SOUTH CENTRAL GREAT PLAINS

	Year									
Replication	1	2	3	4	5	6	7	8	9	10
1	0.54	0.61	0.27	0.84	1.07	0.27	0.00	0.46	0.00	0.57
2	0.23	0.23	0.25	0.52	0.96	0.18	0.82	0.49	0.00	1.07
3	0.37	0.71	0.85	0.01	0.55	0.00	0.10	0.44	0.38	0.68
4	0.02	0.65	0.00	0.00	0.38	0.04	0.15	1.03	0.80	1.02
5	0.80	0.03	0.21	0.47	0.44	0.79	0.23	0.35	0.62	0.27
6	0.09	0.04	0.11	0.00	0.17	0.89	0.44	0.86	0.33	0.57
7	0.46	0.69	0.52	0.00	0.13	0.91	0.55	0.09	0.93	0.07
8	0.88	0.30	0.63	0.24	0.63	0.48	0.23	0.20	0.38	0.13
9	0.59	0.45	0.74	0.47	0.71	0.00	1.05	0.92	0.00	0.32
10	0.90	0.19	0.78	0.37	1.07	0.55	0.32	0.96	0.66	0.73
11	0.00	0.90	0.19	0.49	0.03	0.89	0.00	0.50	0.11	0.94
12	0.71	0.16	0.06	0.85	0.22	1.03	0.39	0.39	1.07	0.46
13	0.66	0.12	0.87	0.29	0.09	0.95	0.46	0.00	0.59	0.68
14	0.24	0.52	0.57	0.00	0.28	0.46	1.07	0.63	0.38	0.38
15	0.14	0.41	0.63	0.14	0.52	0.46	0.28	0.04	0.21	0.41
Mean	0.44	0.40	0.45	0.31	0.48	0.53	0.41	0.49	0.43	0.55
Std. Dev.	0.31	0.27	0.30	0.29	0.35	0.37	0.34	0.34	0.34	0.31
Maximum	0.90	0.90	0.87	0.85	1.07	1.03	1.07	1.03	1.07	1.07
Minimum	0.00	0.03	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.07
Range	0.90	0.87	0.87	0.85	1.04	1.03	1.07	1.03	1.07	1.00

TABLE XLVI (Continued)

Replication	Year									
	11	12	13	14	15	16	17	18	19	20
1	0.24	0.61	0.75	0.71	0.42	0.10	0.33	1.03	0.03	0.58
2	1.01	0.96	0.05	0.19	0.88	0.22	0.94	0.52	0.23	0.34
3	0.85	0.02	1.05	0.91	0.99	0.15	0.57	0.48	0.50	0.72
4	0.45	0.00	0.46	0.50	0.94	0.14	0.34	0.59	0.24	0.82
5	0.00	0.60	0.57	0.31	0.96	0.70	0.87	0.62	0.06	0.65
6	0.00	0.33	0.53	0.44	0.12	0.27	0.99	0.88	0.01	0.43
7	0.73	0.27	0.00	0.66	0.12	0.04	0.18	0.05	0.21	0.49
8	0.77	0.63	0.00	0.16	0.55	0.62	0.08	0.90	1.06	0.95
9	0.00	0.82	0.38	0.17	0.32	0.81	0.81	0.12	0.73	0.16
10	0.99	0.73	0.67	0.84	1.08	0.63	0.93	0.84	0.72	0.81
11	0.58	0.00	0.99	0.00	0.89	0.46	0.00	0.86	0.00	0.81
12	0.92	0.52	0.00	0.31	0.49	0.94	0.17	0.00	0.96	0.80
13	0.07	0.06	0.00	0.59	0.23	0.71	0.00	0.88	0.84	0.46
14	0.53	0.21	0.11	0.91	0.41	0.34	0.36	0.46	0.00	0.84
15	0.05	0.46	0.12	0.39	0.32	0.47	0.55	0.16	0.63	0.00
Mean	0.48	0.41	0.38	0.47	0.58	0.44	0.47	0.56	0.41	0.59
Std. Dev.	0.39	0.31	0.37	0.29	0.34	0.28	0.36	0.34	0.38	0.27
Maximum	1.01	0.96	1.05	0.91	1.08	0.94	0.99	1.03	1.06	0.95
Minimum	0.00	0.00	0.00	0.00	0.12	0.04	0.00	0.00	0.00	0.00
Range	1.01	0.96	1.05	0.91	0.96	0.90	0.99	1.03	1.06	0.95

TABLE XLVII

SUMMARY OF NET FARM INCOME FOR A 25 YEAR OLD FARM OPERATOR WITH A STARTING FARM SIZE OF 960 ACRES AND A BEGINNING TENURE STATUS OF A FULL OWNER

	Year									
Replication	1	2	3	4	5	6	7	8	9	10
1	4,243	386	- 2,345	9,985	15,671	8,510	11,497	14,661	14,494	8,527
2	- 3,550	9,562	1,996	6,115	14,548	19,404	3,355	16,417	13,854	- 127
3	- 2,822	11,138	3,828	15,915	11,057	9,810	7,480	14,706	5,476	13,749
4	1,926	101	12,097	6,229	10,023	5,049	- 1,101	14,700	13,935	11,840
5	2,742	2,922	10,279	5,291	15,994	19,450	8,674	22,288	15,753	16,208
6	650	1,482	509	3,384	4,531	12,929	17,021	2,229	1,934	7,634
7	- 3,651	12,057	- 619	1,969	8,681	3,935	2,249	338	13,171	15,647
8	5,482	2,465	1,938	4,140	42	6,667	- 1,475	9,334	9,203	- 1,932
9	- 599	1,726	- 3,544	9,714	2,608	1,367	14,121	3,265	- 976	4,597
10	2,815	9,669	12,783	13,073	13,662	21,506	7,792	6,205	16,086	14,746
11	- 4,883	13,348	6,228	8,015	2,239	11,059	30	5,531	9,548	9,034
12	5,604	4,962	2,625	17,737	9,470	8,459	12,682	1,930	9,028	1,507
13	760	7,708	11,190	3,466	6,157	748	14,129	- 87	383	- 207
14	5,869	10,980	5,049	2,599	11,318	20,789	17,765	2,371	25,041	20,919
15	- 1,384	1,541	11,731	4,101	17,483	15,075	7,521	13,238	8,139	2,318
Mean	880	6,003	4,916	7,449	9,566	10,984	8,116	8,475	10,338	8,297
Std. Dev.	3,610	4,772	5,529	4,907	5,470	6,993	6,423	7,034	6,861	7,093
Maximum	5,869	13,348	12,783	17,737	17,483	21,506	17,765	22,288	25,041	20,919
Minimum	- 4,883	101	- 3,544	1,969	42	748	- 1,475	- 87	- 976	- 1,932
Range	10,752	13,247	16,327	15,768	17,441	20,758	19,240	22,375	26,017	22,851

TABLE XLVII (Continued)

Replication	Year									
	11	12	13	14	15	16	17	18	19	20
1	24,034	28,631	15,520	23,285	18,959	12,757	3,020	9,911	15,873	31,861
2	12,957	21,925	15,203	6,523	9,695	29,221	26,767	14,881	19,287	18,134
3	17,843	6,891	3,378	16,115	37,909	20,759	17,736	10,023	3,013	26,376
4	8,870	9,422	15,382	21,354	12,788	20,554	9,926	20,140	6,669	10,981
5	15,263	25,328	14,195	4,169	30,233	12,916	23,290	27,357	29,325	17,535
6	4,176	276	- 3,307	15,954	4,507	9,873	9,088	17,839	- 5,987	16,236
7	13,701	5,333	5,138	10,583	20,051	9,580	8,799	24,186	11,156	20,699
8	7,144	- 5,359	10,458	5,763	10,774	4,011	14,315	- 653	20,059	6,312
9	- 1,732	19,323	8,901	4,826	12,649	14,692	15,628	11,517	23,284	627
10	21,540	23,079	19,769	32,428	8,091	32,010	14,981	25,743	21,610	22,040
11	- 1,098	9,248	5,405	20,737	12,996	11,075	977	26,972	16,703	22,547
12	22,864	11,506	15,119	28,207	8,060	25,986	31,075	32,387	4,545	22,229
13	9,662	9,786	15,503	9,555	13,906	15,761	15,166	18,201	14,793	15,258
14	14,447	9,421	25,975	5,629	12,207	12,603	14,206	19,277	19,898	25,322
15	5,677	- 4,594	9,532	14,570	13,908	7,711	10,612	30,762	12,695	22,584
Mean	11,690	11,348	11,745	14,647	15,116	15,967	14,372	19,236	14,195	18,583
Std. Dev.	8,050	10,466	7,235	9,006	8,761	8,120	8,138	9,056	9,112	7,985
Maximum	24,034	28,631	25,975	32,428	37,909	32,010	31,075	32,387	29,325	31,861
Minimum	- 1,732	- 5,359	- 3,307	4,169	4,507	4,011	977	- 653	- 5,987	627
Range	25,766	33,990	29,282	28,259	33,402	27,999	30,098	33,040	35,312	31,234

APPENDIX D

ESTIMATES OF NET FARM INCOME, CONSUMPTION, AND NET WORTH BY REPLICATE WITH A 20-YEAR PLANNING HORIZON

TABLE XLVIII

SUMMARY OF CONSUMPTION FOR A 25 YEAR OLD FARM OPERATOR WITH A STARTING FARM SIZE OF 960 ACRES AND A BEGINNING TENURE STATUS OF A FULL OWNER

	Year									
Replication	1	2	3	4	5	6	7	8	9	10
1	6,000	6,330	6,678	7,853	8,535	8,247	8,238	8,259	8,687	8,780
2	6,000	6,523	7,323	7,558	8,432	8,773	7,568	8,788	8,275	7,612
3	6,000	6,671	6,765	7,845	7,918	8,157	8,057	8,761	8,381	8,755
4	6,000	6,023	7,752	7,653	8,337	7,757	7,656	8,554	8,506	8,279
5	6,000	6,747	7,603	6,893	8,352	8,776	8,402	8,808	8,367	8,197
6	6,000	6,174	6,931	7,383	7,784	8,031	8,365	7,680	7,476	8,023
7	6,000	7,182	6,784	6,995	8,286	7,967	7,510	7,605	8,435	8,492
8	6,000	6,213	6,704	6,893	7,388	8,087	7,462	8,395	8,490	7,389
9	6,000	6,218	6,600	7,679	8,516	7,571	8,513	8,094	8,079	7,708
10	6,000	6,968	7,513	7,444	8,441	8,798	8,389	7,664	8,577	8,420
11	6,000	7,325	7,275	7,823	7,841	7,709	7,667	7,433	8,540	8,311
12	6,000	6,975	6,699	7,973	8,357	8,641	8,730	7,508	8,409	8,349
13	6,000	6,939	7,817	6,894	7,652	7,589	8,471	7,418	7,629	7,967
14	6,000	6,724	7,608	6,976	7,929	8,799	8,571	7,762	8,828	8,828
15	6,000	6,444	7,677	7,238	8,506	8,174	7,935	8,507	8,202	7,715
Mean	6,000	6,630	7,182	7,407	8,152	8,205	8,102	8,082	8,325	8,188
Std. Dev.	0	396	457	398	366	453	434	526	364	445
Maximum	6,000	7,325	7,817	7,973	8,535	8,799	8,730	8,808	8,828	8,828
Minimum	6,000	6,023	6,600	6,893	7,388	7,571	7,462	7,418	7,476	7,389
Range	0	1,302	1,217	1,080	1,147	1,228	1,268	1,390	1,352	1,439

TABLE XLVIII (Continued)

	Year									
Replication	11	12	13	14	15	16	17	18	19	20
1	8,818	8,855	8,565	8,848	9,361	8,588	8,167	8,766	8,711	10,261
2	8,662	8,855	8,706	8,085	8,423	9,989	9,306	8,552	9,539	9,721
3	8,649	8,757	7,844	8,615	10,618	8,816	9,223	8,697	8,278	10,806
4	8,207	7,859	8,147	8,668	8,531	8,515	8,536	8,751	8,405	8,291
5	8,825	8,863	8,762	8,173	9,841	8,858	9,035	9,198	10,407	8,888
6	8,065	7,187	7,229	8,548	7,749	8,167	7,890	8,649	7,401	8,552
7	8,210	8,072	7,713	7,794	8,745	7,968	8,484	8,806	8,817	8,545
8	8,383	6,997	8,133	7,938	8,630	7,921	8,526	7,737	8,758	7,881
9	7,966	8,748	8,610	7,819	8,466	8,818	8,579	8,303	9,065	8,039
10	8,898	8,705	8,510	9,770	8,240	10,087	8,878	9,096	9,848	10,058
11	7,277	8,386	7,657	8,560	8,164	8,535	7,921	9,436	8,763	8,734
12	8,980	8,679	8,795	10,015	8,282	9,098	9,256	10,935	8,784	8,785
13	8,560	8,577	8,735	8,322	8,727	8,755	8,809	8,810	8,545	8,716
14	8,829	8,518	9,230	8,483	8,629	8,687	8,817	8,821	9,200	8,886
15	8,258	7,582	8,564	8,792	8,326	8,286	8,804	9,292	8,592	9,712
Mean	8,439	8,309	8,347	8,562	8,715	8,739	8,682	8,923	8,874	9,058
Std. Dev.	456	626	540	638	722	624	446	692	701	856
Maximum	8,980	8,863	9,230	10,015	10,618	10,087	9,306	10,935	10,407	10,806
Minimum	7,277	6,997	7,229	7,794	7,749	7,921	7,890	7,737	7,401	7,881
Range	1,703	1,866	2,001	2,221	2,869	2,166	1,416	3,198	3,006	2,925

TABLE XLIX

SUMMARY OF NET WORTH FOR A 25 YEAR OLD FARM OPERATOR WITH A STARTING FARM SIZE OF 960 ACRES AND A BEGINNING TENURE STATUS OF A FULL OWNER

	Year									
Replication	1	2	3	4	5	6	7	8	9	10
1	122,753	119,928	114,354	117,977	125,529	127,695	132,311	139,381	145,889	147,532
2	116,088	120,564	118,165	118,914	125,720	135,767	134,332	142,178	148,581	144,191
3	116,786	122,403	122,054	130,307	134,872	138,188	134,119	140,723	140,222	146,115
4	120,900	118,146	123,606	124,357	127,669	127,425	122,060	128,866	135,104	139,930
5	121,555	120,379	124,499	125,208	133,152	143,231	145,379	157,423	165,209	173,480
6	119,856	118,084	114,861	113,530	112,840	118,792	127,497	125,028	122,518	124,173
7	115,987	121,827	117,795	115,701	117,969	116,597	114,314	110,352	116,098	123,675
8	123,787	122,770	120,942	120,693	116,689	117,478	111,950	114,662	117,167	111,276
9	118,823	117,208	110,564	114,169	125,352	122,282	128,662	126,627	120,958	120,401
10	121,615	125,738	131,963	138,493	144,631	156,174	157,601	158,417	166,210	173,188
11	114,755	121,439	122,567	124,632	122,011	126,788	122,492	122,983	125,688	128,228
12	123,871	124,107	122,851	131,990	134,816	136,543	141,627	139,083	141,523	137,789
13	119,947	122,522	127,159	126,384	127,171	123,572	130,001	125,843	121,896	117,075
14	124,097	129,529	129,338	127,784	132,559	143,602	152,693	150,262	164,145	175,199
15	118,159	116,165	121,396	120,770	129,701	137,136	138,786	144,513	146,422	143,994
Mean	119,932	121,387	121,474	123,394	127,379	131,418	132,922	135,089	138,509	140,416
Std. Dev.	3,088	3,454	5,729	7,014	8,1 2	11,321	12,923	14,519	17,610	20,670
Maximum	124,097	129,529	131,963	138,493	144,631	156,174	157,601	158,417	166,210	175,199
Minimum	114,755	116,165	110,564	113,530	112,840	116,597	111,950	110,352	116,098	111,276
Range	9,342	13,364	21,399	24,963	31,791	39,577	45,651	48,065	50,112	63,923

TABLE XLIX (Continued)

Replication	Year									
	11	12	13	14	15	16	17	18	19	20
1	160,737	176,150	183,552	196,237	205,094	210,381	208,094	210,912	218,378	234,712
2	149,536	161,253	168,259	168,953	171,930	186,635	201,231	208,134	217,071	225,234
3	155,120	155,430	153,738	161,515	181,846	192,848	201,264	204,245	201,590	214,390
4	142,435	145,714	153,423	164,978	170,347	181,490	184,521	195,103	195,326	199,454
5	180,415	194,483	200,675	199,313	214,644	219,760	232,261	246,415	260,777	269,367
6	122,898	119,303	112,268	119,984	119,304	122,658	125,666	134,666	124,778	132,715
7	130,076	129,757	129,631	133,921	144,440	147,746	149,918	163,250	167,001	178,227
8	112,153	103,297	107,178	107,365	110,981	109,718	116,242	111,224	121,735	122,426
9	114,124	124,131	126,263	125,765	131,085	137,622	145,095	149,691	162,157	158,026
10	184,658	197,326	207,923	225,155	226,762	243,377	250,033	264,184	274,508	285,111
11	123,246	125,894	126,052	137,292	143,167	147,131	143,388	157,026	165,126	177,446
12	150,016	154,199	161,049	174,997	176,786	190,998	207,769	223,807	221,903	233,925
13	119,859	122,731	129,949	132,881	138,875	146,279	153,153	162,279	169,169	176,209
14	181,527	184,149	198,221	197,774	202,323	207,384	213,530	223,428	233,371	247,411
15	143,788	135,113	137,784	144,248	150,644	152,131	155,503	172,014	177,246	188,616
Mean	144,706	148,595	153,064	159,359	165,882	173,077	179,178	188,425	194,009	202,885
Std. Dev.	24,513	29,252	32,814	34,413	35,569	38,676	40,563	42,838	44,676	47,331
Maximum	184,658	197,326	207,923	225,155	226,762	243,377	250,033	264,184	274,508	285,111
Minimum	112,153	103,297	107,178	107,365	110,981	109,718	116,242	111,224	121,735	122,426
Range	72,505	94,029	100,745	117,790	115,781	133,659	133,791	152,960	152,773	162,685

TABLE L

SUMMARY OF NET FARM INCOME FOR A 45 YEAR OLD FARM OPERATOR WITH A STARTING FARM SIZE OF 960 ACRES AND A BEGINNING TENURE STATUS OF A FULL OWNER

	Year									
Replication	1	2	3	4	5	6	7	8	9	10
1	4,243	395	- 2,420	9,854	15,493	8,356	11,373	14,605	14,505	8,610
2	- 3,550	9,562	1,918	5,991	14,376	19,256	3,231	16,365	13,874	- 30
3	- 2,122	11,138	3,751	15,791	10,889	9,671	641	14,676	5,515	13,871
4	1,926	109	12,019	6,105	9,851	4,902	- 1,216	14,674	13,979	11,961
5	2,742	2,931	10,207	5,175	15,831	19,316	8,566	22,250	15,782	13,669
6	650	1,490	434	3,261	4,359	12,784	16,907	2,181	1,965	7,751
7	- 3,651	12,057	- 697	1,835	8,497	3,780	2,125	288	13,203	15,756
8	5,482	2,474	1,865	4,021	- 124	6,533	- 1,578	9,324	9,266	- 1,789
9	- 599	1,733	- 3,621	9,581	20,425	1,207	13,993	3,204	- 959	4,712
10	2,815	9,679	12,715	12,963	13,505	21,374	7,683	6,169	16,128	12,588
11	- 4,883	13,348	6,152	7,893	2,069	10,920	- 81	5,498	9,493	9,160
12	5,604	4,972	2,556	17,222	9,314	8,333	12,588	1,903	9,083	1,641
13	760	7,716	11,117	3,352	5,994	- 289	10,659	- 949	- 860	- 1,271
14	5,869	10,991	4,982	2,487	11,157	20,655	17,756	2,321	25,071	21,015
15	- 1,384	1,541	11,747	3,974	17,208	14,923	7,398	13,188	8,161	1,824
Mean	927	6,009	4,848	7,300	10,590	10,781	7,336	8,380	10,280	7,965
Std. Dev.	3,563	4,771	5,538	4,848	5,789	7,094	6,533	7,110	7,000	6,919
Maximum	5,869	13,348	12,715	17,222	20,425	21,374	17,756	22,250	25,071	21,015
Minimum	- 4,883	109	- 3,621	1,835	- 124	- 289	- 1,578	- 949	- 959	- 1,789
Range	10,752	13,239	16,336	15,387	20,549	21,663	19,334	23,199	26,030	22,804

TABLE L (Continued)

Replication	Year									
	11	12	13	14	15	16	17	18	19	20
1	24,201	28,876	15,520	21,462	17,238	11,382	2,480	8,152	12,800	24,600
2	13,148	22,203	15,567	6,715	9,631	26,585	24,362	11,916	15,557	14,599
3	18,043	7,177	3,763	15,923	34,851	19,000	16,419	8,858	2,925	21,191
4	9,077	9,719	15,777	17,153	10,143	16,110	7,954	14,396	4,906	7,584
5	13,394	21,761	12,504	3,212	22,826	9,921	17,317	17,836	19,074	11,598
6	4,381	574	- 2,905	16,487	5,142	10,631	9,972	14,949	- 4,545	13,584
7	13,888	5,602	5,505	8,252	16,669	7,659	7,294	16,888	8,516	13,945
8	7,398	- 5,007	10,938	4,190	8,883	2,907	11,298	- 1,186	13,182	3,290
9	- 1,531	19,640	9,305	4,321	11,547	13,672	14,119	10,017	19,393	2,454
10	18,621	19,701	16,694	23,817	5,187	23,216	11,009	16,328	13,389	13,292
11	- 889	9,569	5,822	16,699	10,362	9,277	657	19,074	11,893	15,568
12	23,090	11,815	15,523	28,708	8,575	25,986	31,075	28,135	3,349	18,606
13	7,120	7,338	12,160	5,423	9,335	10,655	10,133	11,117	8,046	8,868
14	14,484	9,421	25,975	5,906	12,584	13,051	14,759	18,192	18,623	22,988
15	5,083	- 3,506	8,809	13,002	11,975	7,590	10,510	22,398	9,928	16,708
Mean	11,301	10,992	11,397	12,751	12,997	13,843	12,624	14,471	10,469	13,925
Std. Dev.	7,867	9,822	6,829	8,038	7,597	7,019	7,745	6,864	6,779	6,536
Maximum	24,201	28,876	25,975	28,708	34,851	26,585	31,075	28,135	19,393	24,600
Minimum	- 1,531	- 5,007	- 2,905	3,212	5,142	2,907	657	- 1,186	- 4,545	2,454
Range	25,732	33,883	28,880	25,496	29,709	23,678	30,418	29,321	23,938	22,146

TABLE LI

SUMMARY OF CONSUMPTION FOR A 45 YEAR OLD FARM OPERATOR WITH A STARTING FARM SIZE OF 960 ACRES AND A BEGINNING TENURE STATUS OF A FULL OWNER

	Year									
Replication	1	2	3	4	5	6	7	8	9	10
1	6,000	7,585	7,306	8,480	7,907	7,618	6,981	7,004	7,431	7,525
2	6,000	7,779	7,951	8,185	7,803	8,144	6,312	7,532	7,020	6,357
3	6,000	7,927	7,393	8,472	7,290	7,529	6,801	7,505	7,125	7,500
4	6,000	7,278	8,379	8,280	7,709	7,129	6,400	7,298	7,251	7,023
5	6,000	8,003	8,230	7,520	7,723	8,147	7,146	7,552	7,112	6,658
6	6,000	7,429	7,558	8,010	7,155	7,403	7,109	6,423	6,220	6,768
7	6,000	8,438	7,411	7,623	7,657	7,339	6,254	6,349	7,779	7,237
8	6,000	7,469	7,331	7,520	6,759	7,458	6,206	7,139	7,234	6,134
9	6,000	7,474	7,228	8,306	7,888	6,942	7,257	6,838	6,824	6,453
10	6,000	8,223	8,140	8,071	6,812	8,169	7,133	6,409	7,322	6,884
11	6,000	8,580	7,902	8,451	7,212	7,080	6,411	6,177	7,285	7,056
12	6,000	8,231	7,326	8,601	7,728	8,013	7,474	6,252	7,154	7,094
13	6,000	8,195	8,445	7,521	7,023	6,657	6,881	5,878	6,059	6,373
14	6,000	7,980	8,236	7,603	7,301	8,170	7,314	6,506	7,573	7,573
15	6,000	7,700	8,304	7,865	7,878	7,546	6,678	7,252	6,947	6,196
Mean	6,000	7,886	7,809	8,034	7,456	7,556	6,824	6,808	7,089	6,855
Std. Dev.	0	396	457	398	399	488	423	556	454	485
Maximum	6,000	8,580	8,445	8,601	7,907	8,170	7,474	7,552	7,779	7,573
Minimum	6,000	7,278	7,228	7,520	6,759	6,657	6,206	5,878	6,059	6,134
Range	0	1,302	1,217	1,081	1,148	1,513	1,268	1,674	1,720	1,439

TABLE LI (Continued)

	Year									
Replication	11	12	13	14	15	16	17	18	19	20
1	7,563	7,601	7,311	7,476	7,601	7,115	6,674	7,148	7,068	7,605
2	7,407	7,600	7,452	6,593	6,936	7,693	7,595	6,873	7,534	7,558
3	7,394	7,503	6,590	7,150	8,227	7,416	7,591	7,049	6,582	7,622
4	6,952	6,605	6,893	7,113	6,945	6,929	6,952	6,944	6,525	6,411
5	7,398	7,492	7,290	6,406	7,523	7,253	7,400	7,262	7,479	7,120
6	6,810	5,933	5,975	7,295	6,497	6,915	6,639	7,094	5,871	6,977
7	6,955	6,817	6,459	6,217	7,223	6,375	6,893	7,059	7,076	6,680
8	7,129	5,743	6,880	6,353	7,070	6,334	6,943	5,928	6,980	6,045
9	6,711	7,494	7,356	6,300	6,940	7,404	7,066	6,534	7,389	6,282
10	7,530	7,216	6,985	7,515	6,468	7,558	7,290	7,244	7,395	7,431
11	6,022	7,132	6,404	6,984	6,569	6,952	6,334	7,370	6,975	6,923
12	7,725	7,425	7,541	8,762	7,030	7,846	8,004	8,647	7,385	7,856
13	6,984	7,003	7,208	6,443	6,917	6,962	7,062	6,826	6,442	6,652
14	7,574	7,264	7,976	7,229	7,375	7,434	7,564	7,441	7,612	7,574
15	6,721	6,075	7,047	7,139	6,557	6,514	7,161	7,264	6,636	7,352
Mean	7,125	6,994	7,024	6,998	7,059	7,113	7,145	7,112	6,997	7,073
Std. Dev.	453	629	513	662	480	463	438	567	498	559
Maximum	7,725	7,601	7,976	8,762	8,227	7,846	8,004	8,647	7,612	7,856
Minimum	6,022	5,743	5,975	6,217	6,468	6,334	6,334	5,928	5,871	6,045
Range	1,703	1,858	2,001	2,545	1,759	1,512	1,670	2,719	1,741	1,811

TABLE LII

SUMMARY OF NET WORTH FOR A 45 YEAR OLD FARM OPERATOR WITH A STARTING FARM SIZE OF 960 ACRES AND A BEGINNING TENURE STATUS OF A FULL OWNER

	Year									
Replication	1	2	3	4	5	6	7	8	9	10
1	122,863	118,986	112,712	115,754	123,608	126,155	131,608	139,519	146,923	149,613
2	116,088	119,588	116,605	116,756	123,868	134,218	133,686	142,426	149,785	146,572
3	116,786	121,431	120,495	128,207	133,137	136,843	133,743	141,209	141,749	148,625
4	121,001	117,170	122,065	122,195	125,832	125,980	121,739	129,411	136,623	142,522
5	121,674	119,470	123,061	123,177	131,484	141,878	144,911	157,784	166,480	174,036
6	119,954	117,140	113,321	111,380	111,035	117,371	126,894	125,414	123,975	126,735
7	115,987	120,854	116,120	113,397	116,021	115,044	113,688	110,745	117,457	126,008
8	123,899	121,862	119,455	118,615	115,022	116,192	111,822	115,459	118,953	114,453
9	118,909	116,252	108,904	111,889	123,351	120,679	127,896	126,843	122,396	122,922
10	121,734	124,889	130,590	136,530	142,984	154,808	157,148	158,943	167,705	174,213
11	114,755	120,498	121,047	122,514	120,272	125,403	122,091	123,543	127,261	130,843
12	124,004	123,237	121,407	130,036	133,238	135,370	141,289	139,769	143,192	140,614
13	120,045	121,620	125,727	124,349	125,513	121,885	126,867	123,371	119,768	115,509
14	124,230	128,698	127,932	125,769	130,878	142,236	152,077	150,632	165,349	177,339
15	118,159	115,117	119,811	118,586	127,798	135,606	138,159	144,787	147,676	146,148
Mean	120,006	120,454	119,950	121,277	125,603	129,978	132,241	135,324	139,686	142,410
Std. Dev.	3,139	3,501	5,810	7,104	8,198	11,370	12,947	14,624	17,782	20,512
Maximum	124,230	128,698	130,590	136,530	142,984	154,808	157,148	158,943	167,705	177,339
Minimum	114,755	115,117	108,904	111,380	111,035	115,044	111,822	110,745	117,457	114,453
Range	9,475	13,581	21,686	25,150	31,949	39,764	45,326	48,198	50,248	62,886

TABLE LII (Continued)

Replication	Year									
	11	12	13	14	15	16	17	18	19	20
1	163,801	180,267	188,556	200,898	210,190	215,524	214,140	216,826	223,325	237,653
2	153,013	165,801	173,986	176,044	180,153	194,877	209,156	215,179	223,274	230,625
3	158,692	160,232	159,854	168,625	188,767	199,498	208,222	211,604	210,660	222,738
4	146,139	150,642	159,553	169,266	173,752	182,892	185,597	193,450	193,817	196,792
5	180,684	193,241	199,274	198,750	212,008	216,037	225,593	235,628	246,355	251,858
6	126,618	124,328	118,921	127,924	128,771	133,697	138,379	146,475	139,559	146,727
7	133,442	134,342	135,518	139,210	148,430	151,505	153,751	163,308	166,365	174,121
8	116,553	109,302	114,519	114,724	118,098	117,304	122,729	118,985	125,881	125,560
9	118,091	129,186	132,593	132,961	138,601	145,413	152,922	157,752	168,818	167,707
10	184,534	195,954	205,432	219,374	220,382	233,904	238,774	247,773	254,420	260,953
11	127,253	131,104	132,605	142,023	147,069	150,854	148,231	159,066	164,957	173,672
12	153,872	159,251	167,311	182,496	185,680	199,790	217,466	232,352	230,991	240,984
13	117,516	119,691	125,572	126,714	130,582	135,480	139,841	145,263	148,556	152,334
14	184,583	188,181	202,184	202,961	208,729	215,064	222,537	232,655	242,915	256,246
15	146,723	140,642	143,978	150,569	156,950	159,831	164,412	177,687	182,340	191,462
Mean	147,434	152,144	157,324	163,503	169,877	176,778	182,783	190,267	194,816	201,962
Std. Dev.	24,020	28,137	31,216	32,783	34,046	36,706	38,519	40,234	41,562	44,080
Maximum	184,583	195,954	205,432	219,374	220,382	233,904	238,774	247,773	254,420	260,953
Minimum	116,553	109,302	114,519	114,724	118,098	117,304	122,729	118,985	125,881	125,560
Range	68,030	86,652	90,913	104,650	102,284	116,600	116,045	128,788	128,539	135,393

TABLE LIII

SUMMARY OF NET FARM INCOME FOR A 25 YEAR OLD FARM OPERATOR WITH A STARTING FARM SIZE OF 960 ACRES AND A BEGINNING TENURE STATUS OF A PART OWNER[1]

	Year									
Replication	1	2	3	4	5	6	7	8	9	10
1	2,227	- 1,885	- 4,747	7,420	12,966	3,200	5,334	7,605	7,650	1,747
2	- 5,566	7,259	- 431	3,555	11,844	12,607	- 1,110	9,846	6,600	- 5,035
3	- 4,838	8,838	1,405	13,360	8,371	6,975	- 2,248	11,512	2,085	8,171
4	- 90	- 2,173	9,688	3,690	7,342	2,217	- 4,093	11,503	10,540	8,231
5	725	649	7,885	2,766	13,331	16,654	5,743	19,186	12,477	12,734
6	- 1,366	- 794	- 1,891	836	1,842	10,090	14,026	- 921	- 1,433	3,955
7	- 5,667	9,754	- 3,046	- 617	5,950	1,046	- 878	- 2,981	9,603	11,849
8	3,465	190	- 460	1,610	- 2,624	3,822	- 4,484	6,043	5,692	- 5,675
9	- 2,615	- 563	- 5,958	7,133	17,882	- 1,494	11,079	58	- 4,394	842
10	799	7,397	10,389	10,551	11,004	18,702	4,854	3,095	12,773	11,236
11	- 6,899	11,045	3,807	5,459	- 463	8,198	- 2,991	2,305	6,037	5,367
12	3,588	2,688	231	14,811	6,822	5,662	9,725	- 1,195	5,685	- 2,245
13	- 1,256	5,433	8,788	934	3,485	- 2,073	11,123	- 3,256	- 3,026	- 3,947
14	3,852	8,706	2,653	73	8,651	17,974	14,809	- 741	21,716	17,419
15	- 3,401	- 754	9,311	1,549	14,792	12,251	4,550	10,095	4,796	- 1,248
Mean	- 1,136	3,719	2,508	4,875	8,080	7,722	4,363	4,810	6,453	4,227
Std. Dev.	3,610	4,765	5,531	4,849	5,794	6,824	6,709	6,635	6,709	7,205
Maximum	3,852	11,045	10,389	14,811	17,882	18,702	14,809	19,186	21,716	17,419
Minimum	- 6,899	- 2,173	- 5,958	- 617	- 2,624	- 2,073	- 4,484	- 3,256	- 4,394	- 5,675
Range	10,751	13,218	16,347	15,428	20,506	20,775	19,293	22,442	26,110	23,094

TABLE LIII (Continued)

Replication	Year									
	11	12	13	14	15	16	17	18	19	20
1	11,858	14,801	5,644	14,002	10,777	5,536	- 2,407	3,323	6,737	18,756
2	4,298	10,476	5,337	233	2,310	16,752	14,484	6,286	9,295	8,212
3	11,379	2,309	- 1,434	10,798	29,303	14,193	11,803	4,136	- 2,929	17,431
4	5,029	5,326	11,017	16,719	8,158	16,082	5,490	15,595	1,717	5,717
5	11,814	21,996	11,003	30	25,814	8,370	18,448	22,938	25,051	14,032
6	253	- 3,902	- 7,802	11,102	- 643	4,380	3,233	7,689	-12,339	5,071
7	9,669	1,042	568	5,715	14,866	4,166	2,954	14,531	3,457	10,523
8	3,109	- 9,658	5,818	- 1,343	2,893	- 3,556	4,290	(- 8,730)	(4,949)	(- 5,557)
9	- 5,732	15,011	4,336	- 41	7,462	9,169	9,757	4,715	14,900	- 5,261
10	17,913	19,887	16,576	28,266	3,964	28,220	11,309	21,676	17,038	16,888
11	- 5,008	4,961	832	15,866	7,839	5,587	- 4,871	16,710	7,943	12,314
12	15,810	6,185	8,984	21,534	3,490	19,088	23,165	24,070	- 745	14,413
13	5,637	5,497	10,933	4,702	8,734	10,262	9,327	11,111	7,592	8,080
14	10,750	6,209	22,782	1,978	8,467	8,499	10,300	14,843	15,340	20,343
15	1,862	- 8,658	5,146	9,523	8,248	2,645	5,100	18,996	4,654	12,308
Mean	6,576	6,099	6,649	9,272	9,445	9,960	8,159	13,330	6,979	11,345
Std. Dev.	7,008	9,356	7,448	8,830	8,305	7,852	7,402	7,206	9,379	6,737
Maximum	17,913	21,996	22,782	28,266	29,303	28,220	23,165	24,070	25,051	20,343
Minimum	- 5,732	- 9,658	- 7,802	- 1,343	- 643	- 3,556	- 4,871	3,323	-12,339	- 5,261
Range	23,645	31,654	30,584	29,609	29,946	31,776	28,036	20,747	37,390	25,604

[1]Observations enclosed in parentheses are associated with bankrupt replicates and are not used in computing the values shown for the mean, standard deviation, maximum, minimum, and range.

TABLE LIV

SUMMARY OF CONSUMPTION FOR A 25 YEAR OLD FARM OPERATOR WITH A STARTING FARM SIZE OF 960 ACRES AND A BEGINNING TENURE STATUS OF A PART OWNER[1]

	Year									
Replication	1	2	3	4	5	6	7	8	9	10
1	6,000	6,310	6,657	7,831	8,513	7,876	7,868	7,885	8,364	8,232
2	6,000	6,503	7,303	7,536	8,409	8,496	7,242	8,520	7,899	7,055
3	6,000	6,651	6,744	7,823	7,896	8,134	8,033	8,736	8,355	8,519
4	6,000	6,003	7,731	7,632	8,315	7,734	7,632	8,529	8,480	8,251
5	6,000	6,727	7,582	6,871	8,329	8,753	8,378	8,784	8,342	8,170
6	6,000	6,154	6,910	7,361	7,761	8,008	8,341	7,654	7,450	7,996
7	6,000	7,162	6,763	6,974	8,264	7,944	7,485	7,580	8,408	8,464
8	6,000	6,193	6,683	6,872	7,365	8,063	7,438	8,369	8,463	7,362
9	6,000	6,198	6,579	7,657	8,494	7,547	8,489	8,069	8,053	7,681
10	6,000	6,948	7,492	7,422	8,418	8,775	8,365	7,640	8,551	8,393
11	6,000	7,305	7,254	7,802	7,819	7,686	7,643	7,407	8,514	8,283
12	6,000	6,955	6,678	7,952	8,335	8,618	8,706	7,483	8,383	8,041
13	6,000	6,919	7,796	6,872	7,630	7,566	8,447	7,393	7,603	7,939
14	6,000	6,704	7,588	6,954	7,907	8,776	8,547	7,737	8,803	8,802
15	6,000	6,424	7,656	7,217	8,484	8,151	7,911	8,483	8,176	7,688
Mean	6,000	6,610	7,161	7,385	8,129	8,142	8,035	8,018	8,256	8,058
Std. Dev.	0	396	457	398	366	441	467	505	365	460
Maximum	6,000	7,305	7,796	7,952	8,513	8,776	8,706	8,784	8,803	8,802
Minimum	6,000	6,003	6,579	6,871	7,365	7,547	7,242	7,393	7,450	7,055
Range	0	1,302	1,217	1,081	1,148	1,229	1,464	1,391	1,353	1,747

TABLE LIV (Continued)

Replication	Year									
	11	12	13	14	15	16	17	18	19	20
1	8,311	8,424	7,914	8,459	8,665	8,044	7,606	8,352	8,269	8,804
2	8,049	8,468	8,101	7,538	7,865	8,743	8,649	8,075	8,734	8,757
3	8,372	8,515	7,545	8,370	9,445	8,633	8,806	8,487	8,028	9,744
4	8,179	7,830	8,116	8,636	8,498	8,480	8,500	8,714	8,366	8,251
5	8,797	8,834	8,732	8,143	9,809	8,826	9,001	9,162	10,371	8,852
6	8,037	7,157	7,198	8,515	7,715	8,131	7,853	8,306	7,080	8,183
7	8,181	8,041	7,681	7,762	8,710	7,932	8,446	8,586	8,600	8,236
8	8,355	6,967	8,102	7,572	8,287	7,549	8,156	(7,138)	(8,187)	(7,249)
9	7,937	8,718	8,578	7,786	8,432	8,782	8,542	8,030	8,774	7,757
10	8,890	8,677	8,480	9,740	8,208	10,054	8,844	9,060	9,812	10,021
11	7,248	8,356	7,626	8,527	8,130	8,499	7,884	8,788	8,514	8,469
12	8,753	8,410	8,572	8,931	8,009	8,793	8,808	9,860	8,597	9,066
13	8,531	8,547	8,704	8,289	8,692	8,719	8,771	8,628	8,283	8,486
14	8,801	8,489	9,200	8,452	8,597	8,655	8,783	8,778	9,164	8,848
15	8,230	7,552	8,533	8,609	8,059	8,013	8,620	8,698	8,133	8,754
Mean	8,311	8,199	8,205	8,355	8,475	8,524	8,485	8,680	8,623	8,730
Std. Dev.	424	572	544	565	563	575	420	470	789	601
Maximum	8,890	8,834	9,200	9,740	9,809	10,054	9,001	9,860	10,371	10,021
Minimum	7,248	6,967	7,198	7,538	7,715	7,549	7,606	8,030	7,080	7,757
Range	1,642	1,867	2,002	2,202	2,094	2,505	1,395	1,830	3,291	2,264

[1]Observations enclosed in parentheses are associated with bankrupt replicates and are not used in computing the values shown for the mean, standard deviation, maximum, minimum, and range.

TABLE LV

SUMMARY OF NET WORTH FOR A 25 YEAR OLD FARM OPERATOR WITH A STARTING FARM SIZE OF 960 ACRES AND A BEGINNING TENURE STATUS OF A PART OWNER[1]

	Year									
Replication	1	2	3	4	5	6	7	8	9	10
1	70,583	65,816	57,912	59,480	64,981	63,110	62,996	64,764	66,091	62,670
2	63,522	66,150	61,771	60,427	65,129	70,383	65,423	68,401	69,317	60,728
3	64,250	68,026	65,726	72,052	74,447	75,454	68,618	72,749	69,488	71,107
4	68,692	63,958	67,490	66,161	67,278	64,747	56,522	60,850	64,416	66,334
5	69,369	66,365	68,560	67,248	73,229	81,300	81,030	90,894	96,194	101,880
6	67,626	64,001	58,629	55,241	52,372	56,070	62,546	57,356	51,880	50,492
7	63,421	67,421	61,092	56,872	56,871	53,163	48,181	41,098	43,981	48,629
8	71,570	68,719	64,936	62,679	56,151	54,589	46,167	46,138	45,736	36,200
9	61,433	62,956	53,919	55,416	64,606	58,975	62,989	58,318	49,371	45,756
10	69,430	71,731	76,054	80,584	84,605	94,163	93,143	91,421	96,758	101,000
11	62,189	67,095	66,240	66,184	61,267	63,742	56,585	54,451	54,271	53,770
12	71,669	70,093	66,890	74,202	74,875	74,298	76,990	71,709	71,384	64,542
13	67,726	68,421	71,126	68,309	66,919	60,716	64,808	56,659	50,509	42,123
14	71,885	75,496	73,375	69,764	72,386	81,367	88,216	83,114	94,816	103,401
15	65,687	61,825	65,113	62,461	69,413	74,716	73,915	77,143	76,262	70,725
Mean	67,270	67,205	65,256	65,139	66,969	68,453	67,209	66,338	66,698	65,290
Std. Dev.	3,605	3,522	5,933	7,245	8,373	11,688	13,485	15,029	18,106	21,635
Maximum	71,885	75,496	76,054	80,584	84,605	94,163	93,143	91,421	96,758	103,401
Minimum	61,433	61,825	53,919	55,241	52,372	53,163	46,167	41,098	43,981	36,200
Range	10,452	13,671	22,135	25,343	32,233	41,000	46,976	50,323	52,777	67,201

TABLE LV (Continued)

Replication	Year									
	11	12	13	14	15	16	17	18	19	20
1	67,479	74,444	74,550	80,888	84,471	84,357	77,795	75,550	76,215	85,787
2	59,569	63,130	62,786	58,807	56,222	64,381	70,918	71,393	73,736	75,152
3	75,490	72,254	66,682	70,578	85,886	92,205	96,483	94,781	87,298	94,949
4	65,647	65,564	69,896	78,134	79,765	87,651	87,042	94,355	90,777	90,612
5	106,168	117,961	121,667	116,896	130,017	131,525	140,657	152,759	165,107	171,078
6	46,028	38,469	26,969	30,973	25,987	24,816	22,993	24,413	8,495	7,840
7	51,795	47,984	44,138	44,460	51,191	50,043	47,398	54,037	51,654	55,452
8	33,773	20,647	20,715	15,203	12,665	5,061	3,788	(- 8,580)	(- 9,343)	(- 18,648)
9	35,587	42,427	40,773	36,291	37,400	39,594	42,484	41,712	48,407	38,889
10	109,819	120,277	128,558	142,824	141,009	154,928	158,809	170,223	177,495	184,437
11	45,014	44,092	40,522	48,188	49,914	49,388	40,134	48,213	49,644	54,680
12	71,938	70,992	74,232	85,664	83,904	93,682	106,314	118,503	112,538	118,601
13	41,609	40,959	44,635	43,587	45,501	48,641	50,979	54,887	56,256	57,838
14	106,825	106,820	118,857	115,449	117,252	119,024	102,153	128,782	135,440	146,084
15	67,404	54,694	53,757	56,375	58,526	56,065	55,007	64,807	63,881	68,633
Mean	65,610	65,381	65,916	68,288	70,647	73,424	73,530	85,315	85,496	89,288
Std. Dev.	25,310	29,737	33,718	35,610	37,405	40,958	42,627	43,431	47,508	50,388
Maximum	109,819	120,277	128,558	142,824	141,009	154,928	158,809	170,223	177,495	184,437
Minimum	33,773	20,647	20,715	15,203	12,665	5,061	3,788	24,413	8,495	7,840
Range	76,046	99,630	107,843	127,621	128,344	149,867	155,021	145,810	169,000	176,597

[1]Observations enclosed in parentheses are associated with bankrupt replicates and are not used in computing the values shown for the mean, standard deviation, maximum, minimum, and range.

TABLE LVI

SUMMARY OF NET FARM INCOME FOR A 45 YEAR OLD FARM OPERATOR WITH A STARTING FARM SIZE OF 960 ACRES AND A BEGINNING TENURE STATUS OF A PART OWNER

	Year									
Replication	1	2	3	4	5	6	7	8	9	10
1	2,227	- 1,876	- 4,837	7,272	12,767	5,493	8,344	11,406	11,112	3,966
2	- 5,566	7,259	- 511	3,418	11,658	12,449	- 1,241	9,804	6,633	- 4,919
3	- 4,838	8,838	1,327	13,235	8,202	6,835	- 2,357	11,495	2,142	8,314
4	- 90	- 2,165	9,596	3,551	7,154	2,056	- 4,222	11,464	10,574	8,345
5	725	657	7,808	2,645	13,160	16,508	5,622	19,137	12,497	12,828
6	- 1,366	- 794	- 1,987	683	1,636	9,913	13,875	- 1,006	- 1,429	4,060
7	- 5,667	9,754	- 3,124	- 750	5,756	881	- 1,012	- 3,028	9,652	11,980
8	3,465	201	- 534	1,480	- 2,805	3,678	- 4,596	6,023	5,751	- 5,533
9	- 2,615	- 563	- 6,052	6,981	17,681	- 1,669	10,941	- 12	- 4,382	955
10	799	7,405	10,316	10,436	10,844	18,572	4,749	3,064	12,823	11,362
11	- 6,899	11,045	3,729	5,334	- 635	8,062	- 3,097	2,292	6,105	5,521
12	3,588	2,699	159	14,691	6,659	5,528	9,621	- 1,228	5,748	- 2,098
13	- 1,256	5,434	8,708	811	3,311	- 3,122	7,639	- 4,137	- 4,362	- 5,036
14	3,852	8,717	2,586	- 40	8,485	17,837	14,703	- 779	21,770	17,537
15	- 3,401	- 754	9,215	1,410	14,602	12,083	4,409	10,023	4,798	- 1,165
Mean	- 1,136	3,724	2,427	4,744	7,898	7,674	4,225	4,968	6,629	4,408
Std. Dev.	3,610	4,764	5,533	4,852	5,792	6,840	6,609	6,900	6,965	7,278
Maximum	3,852	11,045	10,316	14,691	17,681	18,572	14,703	19,137	21,770	17,537
Minimum	- 6,899	- 2,165	- 6,052	- 750	- 2,805	- 3,122	- 4,596	- 4,137	- 4,382	- 5,533
Range	10.751	13.210	16.368	15,441	20,486	21,694	19.299	23.274	26.152	23.070

TABLE LVI (Continued)

Replication	Year 11	12	13	14	15	16	17	18	19	20
1	17,060	20,786	10,127	15,234	11,946	6,595	- 1,031	3,954	7,597	18,024
2	4,524	10,796	5,753	- 661	1,138	13,406	11,305	2,789	5,523	4,906
3	11,608	2,629	- 1,011	9,020	25,365	12,679	10,805	4,473	- 1,012	14,764
4	5,228	5,620	11,410	13,128	6,382	12,475	4,210	10,097	190	2,581
5	11,987	22,135	11,003	396	26,294	8,867	19,058	23,609	25,813	14,342
6	446	- 3,611	- 7,388	11,650	16	5,175	4,161	8,758	-11,121	6,486
7	9,886	1,427	1,062	3,523	11,556	2,315	1,527	10,746	2,078	7,088
8	3,363	- 9,308	6,297	- 753	3,623	- 2,698	5,313	- 7,558	6,314	- 4,019
9	- 5,528	15,332	4,753	- 529	6,385	8,177	8,278	3,808	12,777	- 4,475
10	18,123	19,887	16,576	24,592	2,911	23,799	9,199	15,560	12,063	11,952
11	- 4,764	5,324	1,301	11,807	5,339	3,929	- 5,115	12,879	5,335	8,585
12	16,069	6,534	9,438	18,537	3,392	16,981	20,391	18,632	628	11,777
13	3,064	3,019	7,560	528	4,123	5,104	4,221	4,821	1,338	1,726
14	10,942	6,229	22,782	1,838	8,248	8,482	9,895	14,799	15,235	20,510
15	2,050	- 8,374	5,552	10,036	8,874	3,389	5,974	20,009	5,797	13,605
Mean	6,937	6,562	7,014	7,890	8,373	8,578	7,213	9,825	5,904	8,523
Std. Dev.	7,454	9,829	7,272	7,990	7,872	6,548	6,764	8,090	8,476	7,474
Maximum	18,123	22,135	22,782	24,592	26,294	23,799	20,391	23,609	25,813	20,510
Minimum	- 5,528	- 9,308	- 7,388	- 753	16	- 2,698	- 5,115	- 7,558	-11,121	- 4,475
Range	23,651	31,443	30,170	25,345	26,278	26,497	25,506	31,167	36,934	24,985

TABLE LVII

SUMMARY OF CONSUMPTION FOR A 45 YEAR OLD FARM OPERATOR WITH A STARTING FARM SIZE OF 960 ACRES AND A BEGINNING TENURE STATUS OF A PART OWNER

	Year									
Replication	1	2	3	4	5	6	7	8	9	10
1	6,000	7,565	7,285	8,458	7,884	7,595	6,957	6,978	7,405	7,301
2	6,000	7,759	7,930	8,163	7,780	7,868	5,986	7,264	6,643	5,800
3	6,000	7,907	7,372	8,450	7,267	7,506	6,776	7,480	7,099	7,264
4	6,000	7,258	8,358	8,259	7,686	7,106	6,376	7,273	7,224	6,996
5	6,000	7,983	8,210	7,499	7,700	8,124	7,122	7,528	7,086	6,915
6	6,000	7,409	7,537	7,988	7,132	7,380	7,084	6,398	6,194	6,741
7	6,000	8,418	7,390	7,601	7,635	7,315	6,229	6,324	7,153	7,209
8	6,000	7,449	7,310	7,499	6,737	7,435	6,182	7,114	7,208	6,107
9	6,000	7,454	7,207	8,285	7,865	6,919	7,233	6,813	6,797	6,426
10	6,000	8,203	8,119	8,050	7,790	8,146	7,109	6,384	7,296	7,138
11	6,000	8,560	7,881	8,429	7,190	7,057	6,387	6,152	7,258	7,029
12	6,000	8,211	7,305	8,579	7,706	7,990	7,450	6,228	7,128	6,786
13	6,000	8,175	8,424	7,499	7,001	6,634	6,857	5,853	6,033	6,346
14	6,000	7,959	8,215	7,581	7,278	8,147	7,291	6,482	7,547	7,547
15	6,000	7,680	8,283	7,844	7,855	7,523	6,654	7,227	6,921	6,433
Mean	6,000	7,866	7,788	8,012	7,500	7,516	6,780	6,767	6,999	6,803
Std. Dev.	0	396	457	398	366	470	455	537	425	491
Maximum	6,000	8,560	8,424	8,579	7,884	8,147	7,450	7,528	7,547	7,547
Minimum	6,000	7,258	7,207	7,499	6,737	6,634	5,986	5,853	6,033	5,800
Range	0	1,302	1,217	1,080	1,147	1,513	1,464	1,675	1,514	1,747

TABLE LVII (Continued)

	Year									
Replication	11	12	13	14	15	16	17	18	19	20
1	7,365	7,453	7,014	7,214	7,421	6,800	6,363	6,828	6,744	7,412
2	6,794	7,214	6,847	5,979	6,281	7,239	7,101	6,214	6,948	6,990
3	7,118	7,261	6,291	6,837	7,550	7,134	7,393	6,726	6,271	7,478
4	6,924	6,576	6,862	7,081	6,911	6,895	6,917	6,908	6,487	6,372
5	7,542	7,580	7,478	6,889	8,556	7,573	7,749	7,911	9,120	7,600
6	6,782	5,903	5,944	7,262	6,463	6,879	6,601	7,055	5,830	6,934
7	6,926	6,787	6,428	6,184	7,189	6,340	6,856	7,020	7,036	6,637
8	7,100	5,713	6,848	6,319	7,035	6,297	6,905	5,888	6,938	6,001
9	6,683	7,464	7,325	6,268	6,906	7,368	7,028	6,495	7,348	6,239
10	7,636	7,422	7,227	7,592	6,718	7,741	7,483	7,447	7,552	7,572
11	5,994	7,102	6,372	6,952	6,535	6,917	6,297	7,331	6,934	6,880
12	7,498	7,156	7,318	7,500	6,478	7,369	7,398	7,497	6,853	7,378
13	6,955	6,973	7,177	6,410	6,883	6,926	7,024	6,786	6,400	6,609
14	7,546	7,235	7,946	7,199	7,344	7,402	7,530	7,534	7,912	7,597
15	6,975	6,298	7,279	7,356	6,807	6,761	7,369	7,447	6,883	7,505
Mean	7,056	6,942	6,957	6,869	7,005	7,043	7,068	7,006	7,017	7,014
Std. Dev.	429	577	526	516	567	416	428	544	774	542
Maximum	7,636	7,580	7,946	7,592	8,556	7,741	7,749	7,911	9,120	7,600
Minimum	5,994	5,713	5,944	5,979	6,281	6,297	6,297	5,888	5,830	6,001
Range	1,642	1,867	2,002	1,613	2,275	1,444	1,452	2,023	3,290	1,599

TABLE LVIII

SUMMARY OF NET WORTH FOR A 45 YEAR OLD FARM OPERATOR WITH A STARTING FARM SIZE OF 960 ACRES AND A BEGINNING TENURE STATUS OF A PART OWNER

	Year									
Replication	1	2	3	4	5	6	7	8	9	10
1	70,700	64,686	56,064	56,994	62,835	63,063	66,036	71,519	76,360	75,437
2	63,522	65,143	60,068	58,103	63,152	68,745	64,897	68,814	70,766	63,548
3	64,250	67,050	64,160	69,942	72,706	74,088	68,404	73,460	71,275	73,976
4	68,792	62,809	65,756	63,806	65,277	63,131	56,034	61,268	65,835	68,827
5	69,466	65,411	67,046	65,109	71,396	79,795	80,411	91,138	97,368	104,043
6	67,626	62,802	56,710	52,668	50,159	54,178	61,472	57,408	53,192	52,903
7	63,421	66,445	59,432	54,458	54,807	51,489	47,589	41,716	45,616	51,346
8	71,703	67,790	63,312	60,419	54,347	53,190	45,913	46,875	47,511	39,372
9	66,433	61,785	52,026	52,901	62,421	57,251	62,122	58,469	50,789	48,314
10	69,527	70,828	74,623	78,589	82,981	92,855	92,757	92,044	98,333	103,620
11	62,189	66,122	64,681	64,024	59,570	62,425	56,424	55,306	56,194	56,813
12	71,804	69,200	65,390	72,165	73,194	72,996	76,575	72,499	73,215	67,769
13	67,731	67,417	69,586	66,139	65,116	58,861	61,437	54,947	48,053	40,170
14	72,021	74,665	71,962	67,685	70,678	80,039	87,742	83,786	96,294	105,809
15	65,687	60,631	63,372	60,080	67,321	72,957	73,022	77,164	77,296	73,067
Mean	67,658	66,186	63,613	62,872	65,064	67,000	66,722	67,094	68,540	68,334
Std. Dev.	3,294	3,630	6,075	7,416	8,495	11,759	13,487	15,153	18,437	21,950
Maximum	72,021	74,665	74,623	78,589	82,981	92,855	92,757	92,044	98,333	105,809
Minimum	62,189	60,631	52,026	52,668	50,159	51,489	45,913	41,716	45,616	39,372
Range	9,832	14,034	22,597	25,921	32,822	41,366	46,844	50,328	52,717	66,437

TABLE LVIII (Continued)

Replication	Year 11	12	13	14	15	16	17	18	19	20
1	84,824	96,757	101,163	109,367	114,860	116,626	112,611	112,186	114,842	124,876
2	63,569	68,333	69,332	65,974	63,793	70,610	75,884	75,113	75,814	75,966
3	79,487	77,542	73,583	77,269	92,233	98,568	103,165	103,214	99,275	106,839
4	69,320	70,477	76,077	82,828	84,299	90,699	90,356	94,841	91,678	90,577
5	109,448	122,205	126,882	123,513	136,915	139,802	150,246	163,634	176,376	183,531
6	49,675	43,643	33,811	39,211	35,928	36,421	36,354	39,636	26,186	27,722
7	55,669	53,219	50,828	50,658	56,053	54,767	52,331	57,247	55,070	57,398
8	38,156	26,635	28,095	24,321	23,382	17,851	18,436	8,490	9,876	3,357
9	39,604	47,637	47,326	43,793	45,274	47,755	50,661	50,416	56,616	49,403
10	113,507	124,866	134,009	148,343	147,275	160,978	164,376	172,361	177,828	183,181
11	29,553	49,953	47,814	53,656	54,634	54,063	46,151	52,451	53,026	56,337
12	76,307	77,665	81,222	91,506	90,938	100,259	112,036	122,397	119,260	124,654
13	38,884	37,542	39,732	36,926	36,547	36,931	36,490	36,773	34,637	32,612
14	110,367	111,386	124,187	121,691	124,034	126,768	130,526	138,062	145,569	157,144
15	70,945	59,773	60,171	64,194	67,832	66,986	67,660	79,089	80,098	86,756
Mean	68,621	71,176	72,949	75,550	78,266	81,272	83,152	87,061	87,743	90,690
Std. Dev.	27,520	20,682	34,577	36,788	38,759	42,030	44,498	48,203	51,621	55,654
Maximum	113,507	124,866	134,009	148,343	147,275	160,978	164,376	172,361	177,828	183,531
Minimum	29,553	26,635	28,095	24,321	23,382	17,851	18,436	8,490	9,876	3,357
Range	83,954	98,231	105,914	124,022	123,893	143,127	145,940	163,871	167,952	180,174

TABLE LIX

SUMMARY OF NET FARM INCOME FOR A 25 YEAR OLD FARM OPERATOR WITH A STARTING FARM SIZE OF 960 ACRES AND A BEGINNING TENURE STATUS OF A FULL TENANT[1]

	Year									
Replication	1	2	3	4	5	6	7	8	9	10
1	515	- 3,815	- 6,803	5,221	10,643	748	2,743	4,866	4,728	(- 1,367)
2	- 7,278	5,303	- 2,495	1,355	9,524	10,159	- 3,695	7,085	3,657	(- 8,171)
3	- 6,550	6,882	- 658	11,181	6,078	4,550	- 4,813	8,769	- 836	5,049
4	- 1,802	- 4,110	7,623	1,510	5,043	- 215	- 6,667	8,745	7,603	5,105
5	- 987	- 1,283	5,846	613	11,060	14,259	3,224	16,523	9,661	9,736
6	- 3,078	- 2,743	- 3,963	- 1,374	- 501	7,606	11,401	(- 3,687)	(- 4,485)	(743)
7	- 7,379	7,799	- 5,105	- 2,818	3,603	(1,432)	(- 3,440)	(- 5,791)	(6,571)	(8,620)
8	1,753	- 1,738	- 2,498	- 562	- 4,918	1,369	(- 7,074)	(3,268)	(2,736)	(- 8,825)
9	- 4,327	- 2,515	- 8,031	4,916	15,539	- 3,951	8,455	(- 2,715)	(- 7,377)	(- 2,378)
10	- 913	5,465	8,350	8,402	8,739	16,313	2,344	444	9,949	8,230
11	- 8,611	9,090	1,747	3,288	- 2,753	5,755	- 5,576	(- 463)	(3,081)	(2,144)
12	1,876	761	- 1,800	12,654	4,557	3,268	7,195	- 3,870	2,805	- 5,313
13	- 2,968	3,484	6,732	- 1,235	1,187	- 4,500	8,529	(- 5,997)	(- 5,984)	(- 7,138)
14	2,140	6,779	621	- 2,070	6,372	15,565	12,282	- 3,399	18,856	14,392
15	- 5,113	- 2,709	7,232	- 644	12,475	6,035	- 334	4,211	- 851	(- 5,505)
Mean	- 2,848	1,777	453	2,696	5,777	5,497	2,699	4,819	6,175	6,200
Std. Dev.	3,610	4,762	5,533	4,854	5,790	6,731	6,570	6,476	6,200	6,615
Maximum	2,140	9,090	8,350	12,654	15,539	16,313	12,282	16,523	18,856	14,392
Minimum	- 8,611	- 4,110	- 8,031	- 2,818	- 4,918	- 4,500	- 6,667	- 3,870	- 851	- 5,313
Range	10,751	13,200	16,381	15,472	20,457	20,813	18,949	20,393	19,707	19,705

TABLE LIX (Continued)

Replication	Year									
	11	12	13	14	15	16	17	18	19	20
1	(8,525)	(11,253)	(1,879)	(6,252)	(3,922)	(- 1,373)	(- 8,388)	(- 4,943)	(- 3,710)	(4,675)
2	(837)	(6,791)	(1,485)	(- 5,362)	(- 4,020)	(7,780)	(5,242)	(- 3,748)	(- 1,567)	(- 2,745)
3	8,048	- 1,238	(- 5,229)	(6,709)	(24,949)	(9,672)	(6,997)	(- 428)	(- 7,082)	(10,456)
4	(1,695)	(1,776)	(7,236)	(12,692)	(3,889)	(11,530)	(661)	(7,948)	(- 4,555)	(- 1,580)
5	8,622	18,599	8,282	- 2,574	22,870	5,285	15,172	19,483	21,452	9,661
6	(- 3,167)	(- 7,579)	(-11,771)	(6,818)	(- 5,206)	(- 536)	(- 2,011)	(2,080)	(-18,317)	(- 1,382)
7	(6,232)	(- 2,621)	(- 3,364)	(- 1,313)	(6,384)	(- 3,346)	(- 4,550)	(4,134)	(- 5,120)	(- 725)
8	(- 291)	(-13,285)	(1,902)	(- 5,515)	(- 1,602)	(- 8,363)	(- 899)	(-14,268)	(- 1,030)	(-11,938)
9	(- 9,190)	(11,279)	(375)	(- 5,271)	(1,184)	(2,555)	(2,208)	(- 2,738)	(5,692)	(-12,171)
10	14,712	16,619	13,855	24,971	217	24,136	7,107	17,339	12,769	12,832
11	(- 8,440)	(1,331)	(- 3,033)	(7,071)	(143)	(- 1,688)	(-11,123)	(6,293)	(- 1,755)	(931)
12	12,503	2,681	5,251	17,553	- 719	14,595	18,410	17,006	- 4,439	8,310
13	(2,193)	(1,827)	(7,024)	(- 1,113)	(2,783)	(3,661)	(2,373)	(3,307)	(- 749)	(- 601)
14	7,543	2,795	19,704	- 1,240	4,726	4,664	5,761	10,329	10,431	15,351
15	(- 4,653)	(12,178)	(- 3,000)	(- 296)	(- 2,241)	(- 6,583)	(- 5,076)	(3,279)	(- 7,839)	(- 2,689)
Mean	10,286	7,891	11,773	9,678	6,774	12,170	11,612	16,039	10,053	11,538
Std. Dev.	3,155	9,046	6,376	13,736	10,991	9,180	6,149	3,962	10,762	3,171
Maximum	14,712	18,599	19,704	24,971	22,870	24,136	18,410	19,483	21,452	15,351
Minimum	7,543	- 1,238	5,251	- 2,574	- 719	4,664	5,761	10,329	- 4,439	8,310
Range	7,169	19,837	14,453	27,545	23,589	19,472	12,649	9,154	25,891	7,041

[1]Observations enclosed in parentheses are associated with bankrupt replicates and are not used in computing the values shown for the mean, standard deviation, maximum, minimum, and range.

TABLE LX

SUMMARY OF CONSUMPTION FOR A 25 YEAR OLD FARM OPERATOR WITH A STARTING FARM SIZE OF 960 ACRES AND A BEGINNING TENURE STATUS OF A FULL TENANT[1]

	Year									
Replication	1	2	3	4	5	6	7	8	9	10
1	6,000	6,292	6,640	7,813	8,493	7,856	7,847	7,864	8,342	(8,208)
2	6,000	6,486	7,285	7,518	8,390	8,476	7,222	8,498	7,876	(7,031)
3	6,000	6,634	6,727	7,804	7,877	8,114	8,012	8,714	8,332	8,496
4	6,000	5,986	7,713	7,613	8,296	7,714	7,611	8,507	8,457	8,228
5	6,000	6,710	7,564	6,853	8,310	8,733	8,357	8,762	8,320	8,147
6	6,000	6,136	6,892	7,342	7,742	7,988	8,320	(7,633)	(7,427)	(7,972)
7	6,000	7,145	6,745	6,955	8,244	(7,924)	(7,464)	(7,558)	(8,385)	(8,440)
8	6,000	6,176	6,665	6,853	7,346	8,043	(7,417)	(8,348)	(8,441)	(7,338)
9	6,000	6,181	6,562	7,639	8,474	7,527	8,468	(8,047)	(8,030)	(7,657)
10	6,000	6,930	7,474	7,404	8,399	8,755	8,345	7,618	8,529	8,370
11	6,000	7,287	7,236	7,783	7,799	7,666	7,622	(7,386)	(8,491)	(8,260)
12	6,000	6,938	6,660	7,933	8,316	8,598	8,686	7,462	8,361	8,018
13	6,000	6,902	7,779	6,854	7,611	7,546	8,427	(7,371)	(7,581)	(7,916)
14	6,000	6,687	7,570	6,936	7,888	8,756	8,526	7,716	8,781	8,779
15	6,000	6,407	7,638	7,198	8,465	7,785	7,554	8,130	7,804	(7,114)
Mean	6,000	6,593	7,143	7,367	8,110	8,111	8,077	8,141	8,311	8,340
Std. Dev.	0	396	457	398	366	464	460	496	304	273
Maximum	6,000	7,287	7,779	7,933	8,493	8,756	8,686	8,762	8,781	8,779
Minimum	6,000	5,986	6,562	6,853	7,346	7,527	7,222	7,462	7,804	8,018
Range	0	1,301	1,217	1,080	1,147	1,229	1,464	1,300	977	761

TABLE LX (Continued)

Replication	Year 11	12	13	14	15	16	17	18	19	20
1	(8,287)	(8,398)	(7,888)	(8,098)	(8,340)	(7,667)	(7,265)	(7,694)	(7,606)	(8,312)
2	(8,024)	(8,443)	(8,074)	(7,204)	(7,504)	(8,459)	(8,319)	(7,430)	(8,162)	(8,201)
3	8,348	8,490	(7,518)	(8,342)	(9,416)	(8,602)	(8,774)	(8,229)	(7,758)	(8,794)
4	(8,154)	(7,804)	(8,090)	(8,608)	(8,469)	(8,450)	(8,468)	(8,461)	(8,050)	(7,933)
5	8,774	8,810	8,707	8,116	9,782	8,798	8,972	9,133	10,340	8,820
6	(8,012)	(7,131)	(7,170)	(8,486)	(7,685)	(8,099)	(7,819)	(8,270)	(7,042)	(8,143)
7	(8,156)	(8,016)	(7,654)	(7,408)	(8,412)	(7,560)	(8,074)	(8,236)	(8,249)	(7,847)
8	(8,330)	(6,941)	(8,075)	(7,544)	(8,257)	(7,517)	(8,123)	(7,103)	(8,150)	(7,210)
9	(7,912)	(8,691)	(8,551)	(7,492)	(8,128)	(8,588)	(8,246)	(7,710)	(8,561)	(7,449)
10	8,866	8,652	8,455	9,713	8,181	10,026	8,815	9,031	9,781	9,988
11	(7,224)	(8,330)	(7,599)	(8,176)	(7,757)	(8,137)	(7,516)	(8,547)	(8,147)	(8,090)
12	8,728	8,385	8,545	8,903	7,980	8,762	8,777	8,806	8,354	8,766
13	(8,507)	(8,521)	(8,677)	(7,977)	(8,441)	(8,477)	(8,559)	(8,351)	(7,961)	(8,175)
14	8,777	8,465	9,174	8,425	8,569	8,626	8,753	8,754	9,131	8,814
15	(7,582)	(7,001)	(7,894)	(7,985)	(7,412)	(7,367)	(7,993)	(8,100)	(7,468)	(8,185)
Mean	8,699	8,560	8,720	8,789	8,628	9,053	8,829	8,931	9,402	9,097
Std. Dev.	202	170	320	696	807	653	99	181	855	594
Maximum	8,866	8,810	9,174	9,713	9,782	10,026	8,972	9,133	10,340	9,988
Minimum	8,348	8,385	8,455	8,116	7,980	8,626	8,753	8,754	8,354	8,766
Range	518	425	719	1,597	1,802	1,400	219	379	1,986	1,222

[1]Observations enclosed in parentheses are associated with bankrupt replicates and are not used in computing the values shown for the mean, standard deviation, maximum, minimum, and range.

TABLE LXI

SUMMARY OF NET WORTH FOR A 25 YEAR OLD FARM OPERATOR WITH A STARTING FARM SIZE OF 960 ACRES AND A BEGINNING TENURE STATUS OF A FULL TENANT[1]

	Year									
Replication	1	2	3	4	5	6	7	8	9	10
1	26,165	19,557	9,614	9,367	13,009	9,141	6,918	6,407	5,327	(- 844)
2	18,780	19,797	13,472	10,359	13,197	16,484	9,068	9,780	8,268	(- 3,435)
3	19,508	21,686	17,674	22,315	22,810	21,808	12,483	14,398	8,611	7,627
4	24,180	17,584	19,426	16,344	15,555	10,979	200	2,298	3,493	2,822
5	24,921	20,329	20,841	17,782	21,958	28,230	25,896	33,853	36,876	40,136
6	22,961	17,548	10,193	4,882	4	1,673	6,124	(- 1,696)	(-10,108)	(-14,099)
7	18,679	21,125	12,775	6,472	4,565	(- 1,384)	(- 8,789)	(-18,638)	(-18,232)	(-16,173)
8	27,178	22,686	16,977	12,931	4,166	623	(-10,368)	(-12,658)	(-15,479)	(-28,142)
9	21,731	16,491	5,398	5,063	12,570	4,592	6,487	(- 811)	(-12,718)	(-19,303)
10	24,982	25,693	28,391	31,204	33,408	41,203	38,167	34,283	37,341	39,142
11	17,447	20,800	18,293	16,483	9,397	9,849	151	(- 4,334)	(- 6,921)	(-10,041)
12	27,279	24,156	19,120	24,820	23,620	21,085	21,706	13,873	11,191	1,360
13	23,066	22,168	23,202	18,512	15,254	6,708	8,707	(- 1,161)	(-11,226)	(-22,779)
14	27,497	29,551	25,782	20,212	20,947	28,194	33,146	25,530	35,137	41,471
15	20,946	15,294	16,895	12,426	17,601	18,151	13,621	12,309	7,036	(- 3,083)
Mean	23,021	20,964	17,204	15,278	15,204	15,623	14,052	16,970	17,031	22,093
Std. Dev.	3,384	3,687	6,198	7,562	8,702	11,649	12,101	11,589	14,731	20,011
Maximum	27,497	29,551	28,391	31,204	33,408	41,203	38,167	34,283	37,341	41,471
Minimum	17,447	15,294	5,398	4,882	4	623	151	2,298	3,493	1,360
Range	10.050	14,257	22.993	26,322	33,404	40,580	38,016	31,985	33,848	40,111

TABLE LXI (Continued)

Replication	Year 11	12	13	14	15	16	17	18	19	20
1	(1,288)	(5,536)	(2,568)	(2,988)	(1,229)	(- 4,407)	(-16,560)	(-25,696)	(- 33,512)	(- 34,608)
2	(- 7,399)	(- 6,863)	(-10,344)	(-19,410)	(-27,434)	(-26,091)	(-26,735)	(-34,413)	(- 40,729)	(- 48,208)
3	9,312	2,983	(- 6,264)	(- 5,694)	(7,530)	(10,288)	(10,678)	(5,383)	(- 5,957)	(- 2,729)
4	(- 564)	(- 3,534)	(- 2,284)	(2,929)	(1,018)	(5,450)	(897)	(2,384)	(- 6,421)	(- 12,520)
5	41,866	51,309	52,817	45,585	57,015	55,958	62,672	72,421	82,379	84,930
6	(-21,778)	(-32,988)	(-48,429)	(-47,914)	(-57,305)	(-62,573)	(-68,969)	(-72,153)	(- 94,012)	(-100,132)
7	(-15,828)	(-23,004)	(-30,521)	(-35,840)	(-35,621)	(-43,028)	(-52,151)	(-53,632)	(- 63,500)	(- 68,697)
8	(-33,407)	(-50,133)	(-53,268)	(-62,826)	(-69,270)	(-81,650)	(-87,288)	(-105,160)	(-110,951)	(-126,598)
9	(-32,905)	(-28,926)	(-33,800)	(-43,063)	(-46,841)	(-49,956)	(-53,007)	(-59,989)	(- 60,486)	(- 76,606)
10	45,647	53,790	60,014	72,959	68,358	80,432	80,895	89,187	93,040	96,957
11	(-22,205)	(-26,069)	(-33,222)	(-32,200)	(-36,477)	(-42,883)	(-58,021)	(-58,015)	(- 64,495)	(- 68,448)
12	6,296	3,488	2,628	11,217	5,895	12,409	21,734	29,986	20,694	22,173
13	(-26,103)	(-29,744)	(-29,240)	(-34,937)	(-37,717)	(-39,824)	(-43,052)	(-45,310)	(- 50,643)	(- 56,049)
14	42,297	39,502	49,384	43,118	41,836	40,443	39,839	43,022	45,913	52,929
15	(-11,818)	(-27,497)	(-34,913)	(-39,838)	(-46,047)	(-56,497)	(-66,066)	(-68,099)	(- 79,906)	(- 87,316)
Mean	29,084	30,214	41,211	43,220	43,276	47,310	51,285	58,654	60,506	64,247
Std. Dev.	19,510	25,214	26,100	25,260	27,186	28,502	25,889	27,006	33,341	33,645
Maximum	45,647	53,790	60,014	72,959	68,358	80,432	80,895	89,187	93,040	96,957
Minimum	6,296	2,983	2,628	11,217	5,895	12,409	21,734	29,986	20,694	22,173
Range	39,351	50,807	57,386	61,742	62,463	68,023	59,161	59,201	72,346	74,784

[1]Observations enclosed in parentheses are associated with bankrupt replicates and are not used in computing the values shown for the mean, standard deviation, maximum, minimum, and range.

TABLE LXII

SUMMARY OF NET FARM INCOME FOR A 45 YEAR OLD FARM OPERATOR WITH A STARTING FARM SIZE OF 960 ACRES AND A BEGINNING TENURE STATUS OF A FULL TENANT[1]

	Year									
Replication	1	2	3	4	5	6	7	8	9	10
1	515	- 3,807	- 6,895	5,072	10,442	574	2,600	4,797	4,735	- 1,281
2	- 7,278	5,303	- 2,575	1,218	9,336	9,998	- 3,829	7,041	3,691	(- 8,054)
3	- 6,550	6,882	- 737	11,045	5,896	4,397	- 4,937	8,735	- 794	5,189
4	- 1,802	- 4,110	7,522	1,363	4,844	- 386	(- 6,803)	(8,699)	(7,633)	(5,216)
5	- 987	- 1,280	5,749	470	10,864	14,091	3,085	16,458	9,661	8,556
6	- 3,078	- 2,743	- 4,063	- 1,532	(- 722)	(7,419)	(11,242)	(- 3,779)	(- 4,484)	(845)
7	- 7,379	7,799	- 5,185	- 2,955	3,405	(- 1,602)	(- 3,573)	(- 5,834)	(6,625)	(8,758)
8	1,753	1,729	- 2,589	- 710	- 5,128	(1,193)	(- 7,219)	(3,212)	(2,756)	(- 8,720)
9	- 4,327	- 2,515	- 8,131	4,757	15,331	- 4,137	8,304	(- 2,798)	(- 7,367)	(- 2,266)
10	- 913	5,469	8,273	8,281	8,570	16,173	2,231	406	9,994	7,098
11	- 8,611	9,090	1,669	3,163	- 2,928	5,617	(- 5,684)	(- 479)	(3,156)	(2,381)
12	1,876	769	- 1,876	12,522	4,379	3,117	7,075	- 3,918	2,854	- 5,178
13	- 2,968	3,484	6,652	- 1,360	1,002	- 5,560	5,028	(- 6,901)	(- 7,345)	(- 8,256)
14	2,140	6,787	549	- 2,189	6,194	15,415	12,158	- 3,454	18,898	14,509
15	- 5,113	- 2,709	7,132	- 790	12,267	5,851	- 490	4,135	- 851	(- 6,409)
Mean	- 2,848	1,780	366	2,557	6,034	5,429	3,122	4,275	6,024	4,816
Std. Dev.	3,610	4,761	5,534	4,856	5,729	7,307	5,324	6,741	6,608	7,076
Maximum	2,140	9,090	8,273	12,522	15,331	16,173	12,158	16,458	18,898	14,509
Minimum	- 8,611	- 4,110	- 8,131	- 2,955	- 5,128	- 5,560	- 4,937	- 3,918	- 851	- 5,178
Range	10,751	13,200	16,404	15,477	20,459	21,733	17,095	20,376	19,749	19,687

TABLE LXII (Continued)

Replication	Year 11	12	13	14	15	16	17	18	19	20
1	8,716	11,536	2,255	6,736	4,518	- 659	(- 7,451)	(- 3,906)	(- 2,490)	(6,089)
2	(1,139)	(7,197)	(1,922)	(- 4,738)	(- 3,320)	(8,636)	(6,233)	(- 2,610)	(- 242)	(- 1,230)
3	8,278	- 915	- 4,785	4,958	21,039	8,122	5,957	- 750	- 7,531	10,106
4	(1,895)	(2,073)	(7,635)	(9,113)	(2,111)	(7,926)	(- 630)	(4,946)	(- 5,296)	(- 3,386)
5	7,662	17,643	7,606	- 3,508	21,954	4,375	14,270	18,633	20,586	9,488
6	(- 2,974)	(- 7,272)	(-11,340)	(7,384)	(- 4,522)	(302)	(- 1,025)	(3,237)	(-17,004)	(136)
7	(6,458)	(- 2,299)	(- 2,917)	(- 732)	(7,103)	(- 2,500)	(- 3,539)	(5,326)	(- 3,769)	(835)
8	(- 77)	(-12,969)	(2,345)	(- 4,961)	(- 904)	(- 7,516)	(115)	(-13,091)	(341)	(-10,379)
9	(- 8,968)	(11,618)	(812)	(- 4,721)	(1,879)	(3,379)	(3,166)	(- 1,635)	(6,980)	(-10,719)
10	13,803	15,714	13,705	23,734	- 587	23,481	6,442	16,739	12,031	12,110
11	(- 8,180)	(1,712)	(- 2,543)	(7,699)	(894)	(- 803)	(-10,076)	(7,523)	(- 362)	(2,521)
12	12,750	3,017	5,691	14,546	- 830	12,488	15,629	17,914	- 3,725	9,153
13	(- 411)	(- 681)	(3,619)	(- 3,673)	(- 377)	(315)	(- 876)	(- 605)	(- 4,437)	(- 4,462)
14	7,738	3,084	20,061	- 2,017	4,208	4,179	5,310	9,916	10,055	15,015
15	(- 4,375)	(-11,852)	(- 2,547)	(291)	(- 1,526)	(- 5,713)	(- 4,036)	(4,502)	(- 6,457)	(- 1,098)
Mean	9,824	8,346	7,422	7,408	8,384	8,664	9,522	12,490	6,283	11,174
Std. Dev.	2,722	7,652	8,694	10,314	10,412	8,484	4,994	8,172	11,649	2,324
Maximum	13,803	17,643	20,061	23,734	21,954	23,481	15,629	18,633	20,586	15,015
Minimum	7,662	- 915	- 4,785	- 3,508	- 830	- 659	5,310	- 750	- 7,531	9,153
Range	6,141	18,558	24,846	27,242	22,784	24,140	10,319	19,383	28,117	5,862

[1]Observations enclosed in parentheses are associated with bankrupt replicates and are not used in computing the values shown for the mean, standard deviation, maximum, minimum, and range.

TABLE LXIII

SUMMARY OF CONSUMPTION FOR A 45 YEAR OLD FARM OPERATOR WITH A STARTING FARM SIZE OF 960 ACRES AND A BEGINNING TENURE STATUS OF A FULL TENANT[1]

	Year									
Replication	1	2	3	4	5	6	7	8	9	10
1	6,000	7,548	7,267	8,440	7,865	7,227	6,591	6,608	7,086	6,953
2	6,000	7,742	7,912	8,145	7,761	7,848	5,965	7,242	6,621	(5,776)
3	6,000	7,890	7,354	8,432	7,248	7,486	6,756	7,458	7,077	7,241
4	6,000	7,241	8,340	8,240	7,667	7,086	(6,355)	(7,251)	(7,202)	(6,973)
5	6,000	7,966	8,192	7,480	7,681	8,104	7,101	7,506	7,064	6,892
6	6,000	7,392	7,519	7,969	(7,113)	(7,359)	(7,063)	(6,377)	(6,172)	(6,717)
7	6,000	8,401	7,372	7,582	7,615	(7,295)	(6,208)	(6,302)	(7,130)	(7,185)
8	6,000	7,432	7,293	7,480	6,718	(7,415)	(6,161)	(7,092)	(7,185)	(6,083)
9	6,000	7,437	7,189	8,266	7,846	6,899	7,212	6,791	6,775	6,402
10	6,000	8,186	8,102	8,031	7,771	8,127	7,089	6,363	7,274	7,115
11	6,000	8,543	7,863	8,410	7,171	7,037	(6,366)	(6,130)	(7,236)	(7,005)
12	6,000	8,194	7,288	8,561	7,687	7,970	7,430	6,206	7,106	6,763
13	6,000	8,158	8,406	7,481	6,982	6,614	6,836	(5,831)	(6,010)	(6,322)
14	6,000	7,942	8,197	7,563	7,259	8,127	7,270	6,460	7,525	7,524
15	6,000	7,663	8,265	7,825	7,836	7,156	6,298	6,874	6,548	(5,859)
Mean	6,000	7,849	7,771	7,994	7,508	7,473	6,855	6,834	7,008	6,984
Std. Dev.	0	396	457	398	364	540	463	476	312	359
Maximum	6,000	8,543	8,406	8,561	7,865	8,127	7,430	7,506	7,525	7,524
Minimum	6,000	7,241	7,189	7,480	6,718	6,614	5,965	6,206	6,548	6,402
Range	0	1,302	1,217	1,081	1,147	1,513	1,465	1,300	977	1,122

TABLE LXIII (Continued)

Replication	Year									
	11	12	13	14	15	16	17	18	19	20
1	7,032	7,144	6,634	6,845	7,088	6,415	(6,014)	(6,443)	(6,356)	(7,063)
2	(6,770)	(7,189)	(6,820)	(5,951)	(6,251)	(7,208)	(7,069)	(6,180)	(6,913)	(6,952)
3	7,094	7,236	6,265	6,809	7,520	7,104	7,361	6,975	6,505	7,541
4	(6,900)	(6,550)	(6,836)	(7,053)	(6,883)	(6,865)	(6,885)	(6,875)	(6,453)	(6,335)
5	7,518	7,554	7,452	6,861	8,527	7,543	7,718	7,878	9,086	7,566
6	(6,757)	(5,877)	(5,917)	(7,234)	(6,433)	(6,847)	(6,568)	(7,020)	(5,793)	(6,895)
7	(6,901)	(6,761)	(6,400)	(6,156)	(7,159)	(6,309)	(6,823)	(6,986)	(6,999)	(6,599)
8	(7,075)	(5,687)	(6,821)	(6,291)	(7,005)	(6,265)	(6,872)	(5,853)	(6,901)	(5,962)
9	(6,658)	(7,437)	(7,297)	(6,239)	(6,876)	(7,337)	(6,995)	(6,460)	(7,312)	(6,201)
10	7,612	7,397	7,200	8,459	6,927	8,771	7,561	7,776	8,527	8,735
11	(5,969)	(7,076)	(6,346)	(6,923)	(6,505)	(6,886)	(6,265)	(7,297)	(6,898)	(6,843)
12	7,474	7,131	7,292	7,473	6,449	7,339	7,367	7,552	7,101	7,514
13	(6,930)	(6,946)	(7,149)	(6,381)	(6,853)	(6,895)	(6,991)	(6,752)	(6,364)	(6,571)
14	7,523	7,210	7,921	7,172	7,316	7,373	7,500	7,502	7,879	7,562
15	(6,327)	(5,747)	(6,640)	(6,733)	(6,160)	(6,116)	(6,742)	(6,850)	(6,219)	(6,937)
Mean	7,376	7,279	7,127	7,270	7,305	7,424	7,501	7,537	7,820	7,784
Std. Dev.	247	165	592	636	702	769	149	350	1,043	532
Maximum	7,612	7,554	7,921	8,459	8,527	8,771	7,718	7,878	9,086	8,735
Minimum	7,032	7,131	6,265	6,809	6,449	6,415	7,361	6,975	6,505	7,514
Range	580	423	1,656	1,650	2,078	2,356	357	903	2,581	1,221

[1]Observations enclosed in parentheses are associated with bankrupt replicates and are not used in computing the values shown for the mean, standard deviation, maximum, minimum, and range.

TABLE LXIV

SUMMARY OF NET WORTH FOR A 45 YEAR OLD FARM OPERATOR WITH A STARTING FARM SIZE OF 960 ACRES AND A BEGINNING TENURE STATUS OF A FULL TENANT[1]

	Year									
Replication	1	2	3	4	5	6	7	8	9	10
1	26,267	18,412	7,750	6,857	10,836	7,352	6,048	6,489	6,398	1,550
2	18,780	18,787	11,758	8,005	11,193	14,815	8,521	10,203	9,734	(- 596)
3	19,508	20,696	15,981	20,040	20,895	20,255	12,062	14,924	10,361	10,506
4	24,180	16,329	17,590	13,862	13,421	9,284	(- 374)	(2,662)	(4,887)	(5,322)
5	24,959	19,114	19,051	15,339	19,857	26,492	25,078	33,847	37,845	41,123
6	22,961	16,292	8,210	2,120	(- 2,340)	(- 317)	(4,972)	(- 1,684)	(- 8,839)	(-11,690)
7	18,679	20,119	11,061	4,000	2,439	(- 3,043)	(- 9,324)	(-17,961)	(-16,501)	(-13,349)
8	27,289	21,550	15,127	10,312	1,967	(- 1,191)	(-11,072)	(-12,403)	(-14,172)	(-25,475)
9	21,731	15,235	3,415	2,453	10,237	2,701	5,446	(- 675)	(-11,316)	(-16,539)
10	25,029	24,733	26,873	29,089	31,662	39,792	37,691	34,834	38,903	40,764
11	17,447	19,825	16,723	14,301	7,676	8,504	(- 46)	(- 3,402)	(- 4,894)	(- 6,792)
12	27,380	23,206	17,470	22,593	21,732	19,584	21,111	14,487	12,879	4,439
13	23,066	21,164	21,636	16,199	13,314	4,640	5,051	(- 4,181)	(-14,036)	(-25,114)
14	27,598	28,652	24,289	17,978	19,077	26,648	32,469	26,055	36,597	43,911
15	20,946	14,038	15,061	9,825	15,297	16,206	12,673	12,312	8,228	(- 541)
Mean	23,055	19,877	15,466	12,865	14,257	16,356	16,615	19,144	20,118	23,716
Std. Dev.	3,423	3,797	6,325	7,717	7,997	10,881	11,829	10,931	14,754	20,194
Maximum	27,598	28,652	26,873	29,089	31,662	39,792	37,691	34,834	38,903	43,911
Minimum	17,447	14,038	3,415	2,120	1,967	2,701	5,051	6,489	6,398	1,550
Range	10,151	14,614	23,458	26,969	29,695	37,091	32,640	28,345	32,505	42,361

TABLE LXIV (Continued)

Replication	Year									
	11	12	13	14	15	16	17	18	19	20
1	4,820	10,243	8,614	10,434	10,157	6,366	(- 3,599)	(-10,448)	(- 15,839)	(- 14,771)
2	(- 3,265)	(- 1,397)	(- 3,471)	(-10,660)	(-16,732)	(-13,705)	(-12,519)	(-17,849)	(- 21,796)	(- 26,601)
3	13,348	8,525	974	1,355	13,416	16,115	16,776	12,350	1,564	5,461
4	(3,146)	(1,451)	(4,045)	(7,591)	(5,594)	(8,363)	(4,126)	(4,428)	(- 3,821)	(- 10,043)
5	42,810	52,401	54,357	47,488	59,158	58,355	65,333	75,316	85,460	88,841
6	(-17,944)	(-27,593)	(-41,350)	(-39,367)	(-46,822)	(-50,252)	(-54,502)	(-55,740)	(- 75,036)	(- 78,652)
7	(-11,805)	(-17,419)	(-23,262)	(-26,855)	(-25,037)	(-30,390)	(-37,252)	(-36,737)	(- 44,005)	(- 46,745)
8	(-29,448)	(-44,604)	(-46,347)	(-54,098)	(-58,683)	(-68,965)	(-72,574)	(-88,019)	(- 91,470)	(-104,311)
9	(-28,665)	(-23,463)	(-26,918)	(-34,378)	(-36,542)	(-37,978)	(-39,219)	(-43,898)	(- 42,334)	(- 55,753)
10	47,224	55,580	62,624	75,559	71,090	83,520	84,422	93,144	97,618	101,948
11	(-17,441)	(-19,945)	(-25,377)	(-22,816)	(-25,414)	(-29,796)	(-42,637)	(-40,599)	(- 44,626)	(- 46,246)
12	10,491	8,992	9,496	16,891	12,925	18,895	27,215	37,021	29,696	32,818
13	(-29,214)	(-33,555)	(-34,611)	(-41,165)	(-45,159)	(-48,626)	(-53,175)	(-57,258)	(- 64,559)	(- 72,092)
14	45,909	44,385	55,381	49,625	48,659	47,863	47,880	51,685	55,230	62,910
15	(- 7,743)	(-21,842)	(-27,572)	(-30,897)	(-35,171)	(-43,499)	(-50,778)	(-50,831)	(- 60,008)	(- 64,686)
Mean	27,434	30,021	31,908	33,559	35,901	38,519	48,325	53,903	53,914	58,396
Std. Dev.	19,831	23,047	28,285	28,516	26,975	29,755	27,538	31,682	39,478	39,688
Maximum	47,224	55,580	62,624	75,559	71,090	83,520	84,422	93,144	97,618	101,948
Minimum	4,820	8,525	974	1,355	10,157	6,366	16,776	12,350	1,564	5,461
Range	42,404	47,055	61,650	74,204	60,933	77,154	67,646	80,794	96,054	96,487

[1]Observations enclosed in parentheses are associated with bankrupt replicates and are not used in computing the values shown for the mean, standard deviation, maximum, minimum, and range.

TABLE LXV

SUMMARY OF NET FARM INCOME FOR A 25 YEAR OLD FARM OPERATOR WITH A STARTING FARM SIZE OF 1,600 ACRES AND A BEGINNING TENURE STATUS OF A FULL OWNER

	Year									
Replication	1	2	3	4	5	6	7	8	9	10
1	17,268	11,872	10,671	28,861	35,438	24,866	30,710	33,399	36,957	29,638
2	2,741	29,429	17,661	25,519	37,983	48,914	10,389	43,622	32,806	6,017
3	4,683	31,674	17,639	44,109	31,696	29,574	16,200	41,096	20,921	36,979
4	13,411	11,107	37,552	27,716	31,704	25,324	14,808	48,564	44,234	44,910
5	14,871	19,886	33,028	24,571	41,701	47,543	24,516	49,692	32,843	30,841
6	10,798	17,867	15,747	21,939	21,643	40,767	51,562	19,439	21,564	39,035
7	2,444	34,224	11,703	18,649	29,655	22,680	19,301	19,607	47,544	60,342
8	19,989	14,226	13,643	18,053	10,654	25,987	13,102	34,768	35,206	16,536
9	8,338	14,813	7,496	31,314	48,932	15,439	37,861	18,972	16,440	27,606
10	14,652	31,316	35,684	36,922	37,723	49,498	23,044	16,874	41,343	35,928
11	583	38,167	24,342	30,162	17,870	35,607	17,872	26,268	41,364	40,202
12	20,174	20,384	16,766	40,128	27,261	26,333	34,210	13,094	26,442	17,604
13	10,964	27,430	33,455	19,517	24,032	13,441	37,256	13,622	15,903	16,670
14	20,709	26,803	20,225	17,689	28,983	44,604	38,266	14,246	49,726	44,615
15	6,859	15,218	33,676	21,272	43,707	35,521	25,361	37,537	27,833	24,774
Mean	11,232	22,961	21,953	27,095	31,265	32,407	26,297	28,720	32,742	31,446
Std. Dev.	6,793	8,819	10,162	8,259	10,189	11,855	11,690	13,194	10,986	13,929
Maximum	20,709	38,167	37,552	44,109	48,932	49,498	51,562	49,692	49,726	60,342
Minimum	583	11,107	7,496	17,689	10,654	13,441	10,389	13,094	15,903	6,017
Range	20,126	27,060	30,056	26,420	38,278	36,057	41,173	36,598	33,823	54,325

TABLE LXV (Continued)

Replication	Year 11	12	13	14	15	16	17	18	19	20
1	50,182	54,147	33,648	48,978	45,646	28,248	13,166	27,772	36,468	61,212
2	36,079	53,391	38,167	19,268	25,807	64,680	58,142	32,856	50,893	48,638
3	39,237	28,999	16,775	36,782	76,956	47,103	45,393	30,482	15,019	60,454
4	36,474	36,049	47,498	57,951	39,332	57,268	35,070	54,663	29,575	33,438
5	40,228	53,223	34,297	14,326	62,205	34,112	49,534	57,026	65,750	41,940
6	33,294	21,196	10,108	66,547	32,570	47,535	43,590	64,354	6,716	62,845
7	49,710	29,897	26,737	31,832	61,977	33,699	37,101	69,775	44,875	55,457
8	35,568	7,950	40,753	27,366	40,782	22,284	48,724	14,388	60,476	28,028
9	18,199	58,238	35,421	27,491	39,248	45,932	43,603	36,419	64,846	17,727
10	52,201	47,714	40,198	66,190	26,661	65,949	39,457	54,445	49,455	51,226
11	11,529	42,011	25,983	63,127	40,809	39,285	18,751	77,570	56,328	60,967
12	51,328	28,145	35,089	57,550	21,526	51,463	58,786	65,443	22,489	48,595
13	40,832	39,711	49,447	31,014	43,606	46,028	48,589	52,805	42,110	44,421
14	34,563	22,336	50,466	18,676	27,831	29,768	33,607	40,321	47,319	47,792
15	26,408	6,325	33,074	43,422	33,634	23,808	36,704	69,678	36,113	57,710
Mean	37,055	35,289	34,511	40,701	41,239	42,477	40,681	49,866	41,895	48,030
Std. Dev.	11,769	16,526	11,270	18,241	15,424	13,868	12,613	18,510	17,682	13,245
Maximum	52,201	58,238	50,466	66,547	76,956	65,949	58,786	77,570	65,750	62,845
Minimum	11,529	6,325	10,108	14,326	21,526	22,284	13,166	14,388	6,716	17,727
Range	40,672	51,913	40,358	52,221	55,430	43,665	45,620	63,182	59,034	45,118

TABLE LXVI

SUMMARY OF CONSUMPTION FOR A 25 YEAR OLD FARM OPERATOR WITH A STARTING FARM SIZE OF 1,600 ACRES AND A BEGINNING TENURE STATUS OF A FULL OWNER

	Year									
Replication	1	2	3	4	5	6	7	8	9	10
1	6,000	7,267	7,757	9,749	10,526	8,891	8,889	8,899	11,217	11,990
2	6,000	7,556	8,487	9,536	11,398	13,521	8,606	13,872	9,707	8,600
3	6,000	7,613	7,869	10,952	8,890	9,208	9,072	13,507	10,582	12,868
4	6,000	7,128	10,363	10,053	10,924	9,044	8,902	13,891	13,535	13,070
5	6,000	8,034	9,593	8,144	10,822	13,610	10,688	13,962	10,177	8,929
6	6,000	7,402	8,074	8,697	8,859	10,172	12,200	8,911	8,820	11,444
7	6,000	10,264	7,950	8,135	10,647	10,237	8,829	8,886	12,841	14,772
8	6,000	7,079	7,531	7,772	8,308	9,624	8,646	11,303	11,986	8,762
9	6,000	7,367	7,849	10,164	11,820	8,590	11,203	9,186	9,218	8,903
10	6,000	8,916	9,014	8,647	11,496	13,867	10,585	8,819	11,616	10,015
11	6,000	11,274	8,249	11,111	8,883	8,886	8,901	8,750	13,917	13,488
12	6,000	7,872	7,649	10,310	9,671	11,051	11,652	8,334	9,554	9,108
13	6,000	8,862	10,934	8,034	8,769	8,654	10,982	8,444	8,692	9,592
14	6,000	7,543	8,580	7,894	8,776	12,335	10,217	8,645	12,664	12,275
15	6,000	7,556	10,011	8,251	11,869	9,166	8,876	11,180	9,470	9,092
Mean	6,000	8,116	8,661	9,163	10,111	10,457	9,883	10,439	10,933	10,861
Std. Dev.	0	1,222	1,080	1,159	1,276	1,937	1,241	2,277	1,745	2,076
Maximum	6,000	11,274	10,934	11,111	11,869	13,867	12,200	13,962	13,917	14,772
Minimum	6,000	7,079	7,531	7,772	8,308	8,590	8,606	8,334	8,692	8,600
Range	0	4,195	3,403	3,339	3,561	5,277	3,594	5,628	5,225	6,172

TABLE LXVI (Continued)

Replication	Year									
	11	12	13	14	15	16	17	18	19	20
1	12,055	12,897	9,920	12,121	14,188	9,817	8,907	11,117	10,338	15,287
2	11,879	14,990	12,127	8,901	9,807	16,588	15,319	10,063	15,452	15,886
3	11,532	12,987	8,939	10,849	17,671	12,742	15,366	11,351	8,988	17,995
4	12,735	10,390	12,056	15,029	13,998	13,356	14,147	14,940	12,062	11,189
5	13,676	14,453	12,683	8,956	16,367	13,702	14,885	14,578	16,992	13,586
6	11,910	8,793	8,823	17,039	10,951	13,653	11,650	16,374	8,965	15,221
7	12,520	11,944	9,728	9,072	16,184	10,027	13,661	15,724	16,576	12,698
8	12,805	8,801	10,879	9,174	13,670	9,176	12,578	8,874	13,979	8,954
9	9,551	14,750	13,539	9,494	11,365	15,332	12,186	9,729	16,119	8,985
10	15,220	11,864	10,376	16,140	10,077	16,918	13,964	14,515	16,206	16,666
11	8,837	14,188	9,460	13,796	11,064	14,068	10,092	19,520	15,306	14,662
12	13,629	10,889	11,946	15,219	8,951	13,504	13,645	16,517	11,342	15,091
13	12,964	13,135	14,666	10,582	13,761	14,095	14,916	14,082	11,207	12,813
14	12,481	9,872	14,096	9,425	10,182	10,538	11,749	11,452	13,508	12,688
15	9,376	8,632	11,098	12,822	9,031	9,151	13,081	14,535	10,594	15,711
Mean	12,078	11,906	11,356	11,908	12,484	12,844	13,076	13,558	13,176	13,829
Std. Dev.	1,722	2,244	1,856	2,897	2,831	2,556	1,902	3,001	2,840	2,638
Maximum	15,220	14,990	14,666	17,039	17,671	16,918	15,366	19,520	16,992	17,995
Minimum	8,837	8,632	8,823	8,901	8,951	9,151	8,907	8,874	8,965	8,954
Range	6,383	6,358	5,843	8,138	8,720	7,767	6,459	10,646	8,027	9,041

TABLE LXVII

SUMMARY OF NET WORTH FOR A 25 YEAR OLD FARM OPERATOR WITH A STARTING FARM SIZE OF 1,600 ACRES AND A BEGINNING TENURE STATUS OF A FULL OWNER

	Year									
Replication	1	2	3	4	5	6	7	8	9	10
1	208,794	214,398	218,703	233,200	251,844	265,530	282,407	301,209	320,255	333,259
2	197,305	214,215	223,097	236,354	255,959	281,310	284,698	305,888	323,456	323,231
3	198,856	217,324	226,807	251,078	268,664	284,404	291,792	311,529	320,831	338,243
4	205,936	211,083	231,223	244,592	260,149	274,032	280,525	305,254	327,222	350,141
5	207,004	217,750	235,402	249,451	272,308	296,583	308,287	333,758	350,883	367,814
6	203,887	213,807	221,696	233,430	245,019	267,854	296,433	306,369	317,935	338,250
7	197,061	214,715	219,656	229,602	243,961	254,881	264,789	274,883	299,927	332,256
8	210,737	218,320	225,166	235,072	238,974	252,661	258,140	275,524	292,541	300,509
9	201,888	209,603	211,232	227,079	254,145	261,456	281,168	290,460	297,895	312,523
10	206,829	223,737	243,881	265,283	284,602	310,028	320.540	328,673	350,479	369,986
11	195,550	215,033	228,803	242,874	251,665	272,071	280,846	295,621	315,141	334,253
12	210,882	222,180	231,259	253,307	266,918	279,442	296,076	301,860	315,963	324,389
13	204,026	218,190	234,809	245,473	258,724	264,470	283,967	290,069	297,601	304,845
14	211,202	226,234	236,847	246,344	262,090	285,525	306,514	312,863	339,665	363,158
15	200,675	208,524	226,226	237,889	261,144	281,208	295,289	314,789	329,013	342,511
Mean	204,042	216,341	227,654	242,069	258,411	275,430	288,765	303,250	319,920	335,691
Std. Dev.	5,310	5,001	8,303	10,248	11,831	15,436	16,148	16,620	18,140	21,145
Maximum	211,202	226,234	243,881	265,283	284,602	310,028	320,540	333,758	350,883	369,986
Minimum	195,550	208,524	211,232	227,079	238,974	252,661	258,140	274,883	292,541	300,509
Range	15,652	17,710	32,649	38,204	45,628	57,367	62,400	58,875	58,342	69,477

TABLE LXVII (Continued)

	Year									
Replication	11	12	13	14	15	16	17	18	19	20
1	360,739	390,482	408,444	435,242	457,324	471,500	476,768	489,302	508,626	541,066
2	340,733	367,839	386,847	396,658	409,775	443,412	473,610	490,858	515,454	538,242
3	358,366	369,913	377,894	397,183	438,324	463,151	484,122	498,373	504,698	533,885
4	367,072	386,292	412,089	442,440	460,164	491,696	506,454	534,526	547,162	563,703
5	386,506	414,028	429,694	435,797	467,622	482,135	506,570	536,706	570,458	590,722
6	353,717	365,022	367,956	402,485	418,389	442,615	466,005	499,620	499,420	533,102
7	358,931	372,167	386,319	403,820	435,664	453,555	470,261	508,429	527,568	558,453
8	316,717	317,900	340,018	354,202	373,300	384,974	411,132	417,367	450,335	465,215
9	320,658	351,494	367,113	381,067	401,364	422,757	445,620	465,766	499,741	508,387
10	395,756	421,900	444,122	479,293	492,788	527,008	545,107	573,447	596,253	620,124
11	338,074	357,789	371,637	406,947	428,670	446,542	454,822	494,807	523,461	556,349
12	351,121	364,151	381,123	410,995	422,151	449,355	481,691	515,947	525,365	548,916
13	324,684	343,795	368,386	383,788	404,828	427,527	451,250	478,842	501,358	524,183
14	378,967	389,985	415,879	424,768	438,028	452,577	468,679	489,913	513,879	539,256
15	356,515	356,508	372,878	394,974	413,564	426,261	443,262	482,549	501,361	530,856
Mean	353,904	371,284	388,693	409,977	430,797	452,338	472,357	498,430	519,009	543,497
Std. Dev.	23,128	26,504	27,815	30,101	30,138	33,191	31,615	35,157	33,791	34,922
Maximum	395,756	421,900	444,122	479,293	492,788	527,008	545,107	573,447	596,253	620,124
Minimum	316,717	317,900	340,018	354,202	373,300	384,974	411,132	417,367	450,335	465,215
Range	79,039	104,000	104,104	125,091	119,488	142,034	133,975	156,080	145,918	154,909

TABLE LXVIII

SUMMARY OF NET FARM INCOME FOR A 45 YEAR OLD FARM OPERATOR WITH A STARTING FARM SIZE OF 1,600 ACRES AND A BEGINNING TENURE STATUS OF A FULL OWNER

	Year									
Replication	1	2	3	4	5	6	7	8	9	10
1	17,268	11,882	10,603	28,767	35,303	24,758	30,634	33,399	36,957	29,740
2	2,741	29,439	17,601	25,422	37,852	48,811	10,324	43,622	32,806	6,017
3	4,683	31,684	17,580	44,024	31,572	29,574	16,200	41,096	20,921	37,103
4	13,411	11,118	37,485	27,624	31,571	25,220	14,723	48,564	44,234	45,009
5	14,871	19,901	32,971	24,488	41,586	47,543	24,516	49,692	32,843	30,841
6	10,798	17,880	15,688	21,853	21,513	40,661	51,485	19,439	21,564	39,126
7	2,444	34,233	11,642	18,558	29,525	22,577	19,222	19,585	47,588	60,447
8	19,989	14,241	13,592	17,969	10,526	25,888	13,022	34,757	35,266	16,658
9	8,338	14,826	7,435	31,208	48,784	15,318	37,768	18,972	16,440	27,710
10	14,652	31,331	35,636	36,841	37,630	49,409	22,981	16,874	41,343	36,046
11	583	38,176	24,281	30,077	17,746	35,514	17,840	26,268	41,364	40,253
12	20,174	20,395	16,705	40,041	27,134	26,333	34,210	13,094	26,442	14,761
13	10,964	27,443	33,398	19,434	23,915	13,351	37,183	13,622	15,903	16,791
14	20,709	26,820	20,181	17,614	28,870	44,604	38,266	14,246	49,726	44,615
15	6,859	15,229	33,613	21,172	43,570	35,423	25,361	37,537	27,833	24,774
Mean	11,232	22,973	21,894	27,006	31,140	32,332	26,249	28,718	32,749	31,326
Std. Dev.	6,793	8,817	10,163	8,259	10,187	11,869	11,690	13,195	10,991	14,163
Maximum	20,709	38,176	37,485	44,024	48,784	49,409	51,485	49,692	49,726	60,447
Minimum	583	11,118	7,435	17,614	10,526	13,351	10,324	13,094	15,903	6,017
Range	20,126	27,058	30,050	26,410	38,258	36,058	41,161	36,598	33,823	54,430

TABLE LXVIII (Continued)

	Year									
Replication	11	12	13	14	15	16	17	18	19	20
1	50,182	54,147	33,648	48,978	45,646	28,248	13,166	27,772	36,468	61,212
2	36,079	53,391	38,167	19,268	25,807	64,680	58,142	27,744	44,766	42,601
3	39,237	28,999	16,775	36,782	76,956	47,103	45,393	25,921	11,683	53,245
4	36,474	36,049	47,498	57,951	39,332	57,268	35,070	48,175	25,086	28,203
5	40,228	53,223	34,297	14,326	62,205	34,112	49,534	50,180	58,144	36,270
6	33,294	21,196	10,108	66,547	32,570	47,535	43,590	56,919	4,184	55,376
7	49,710	29,897	26,737	31,832	61,977	33,699	37,101	61,803	39,372	48,232
8	35,752	8,071	40,753	27,795	41,158	22,284	48,724	14,388	60,476	28,028
9	18,289	58,238	35,421	27,491	39,248	45,932	43,603	30,955	57,336	13,971
10	52,201	47,714	40,198	66,190	26,661	65,949	39,457	54,445	49,455	51,226
11	11,529	42,011	25,983	63,127	40,809	39,285	18,751	68,811	49,677	53,515
12	43,314	26,541	32,084	43,704	19,157	39,264	44,792	43,534	15,249	32,235
13	41,020	39,711	49,447	31,014	43,606	46,028	48,589	46,267	36,102	38,290
14	34,563	22,336	50,466	18,676	27,831	29,768	33,607	40,321	47,319	47,792
15	26,408	6,325	33,074	43,422	33,634	23,808	36,704	61,164	30,664	50,762
Mean	36,552	35,190	34,310	39,807	41,106	41,664	39,748	43,893	37,732	42,731
Std. Dev.	11,238	16,567	11,286	17,648	15,650	13,659	11,659	15,764	17,456	12,947
Maximum	52,201	58,238	50,466	66,547	76,956	65,949	58,142	68,811	60,476	61,212
Minimum	11,529	6,325	10,108	14,326	19,157	22,284	13,166	14,388	4,184	13,971
Range	40,672	51,913	40,358	52,221	57,799	43,665	44,976	54,423	56,292	47,241

TABLE LXIX

SUMMARY OF CONSUMPTION FOR A 45 YEAR OLD FARM OPERATOR WITH A STARTING FARM SIZE OF 1,600 ACRES AND A BEGINNING TENURE STATUS OF A FULL OWNER

	Year									
Replication	1	2	3	4	5	6	7	8	9	10
1	6,000	8,523	8,385	10,376	9,898	8,263	7,633	7,644	9,962	10,735
2	6,000	8,812	9,114	10,163	10,769	12,892	7,350	12,617	8,452	7,345
3	6,000	8,869	8,496	11,580	8,261	8,580	7,816	12,252	9,326	11,613
4	6,000	8,384	10,990	10,680	10,296	8,415	7,646	12,636	12,280	11,815
5	6,000	9,290	10,220	8,772	10,194	12,982	9,432	12,706	8,922	7,674
6	6,000	8,657	8,702	9,324	8,230	9,544	10,944	7,655	7,564	10,189
7	6,000	11,520	8,578	8,762	10,018	9,609	7,573	7,630	11,586	13,517
8	6,000	8,334	8,159	8,400	7,679	8,995	7,390	10,048	10,730	7,507
9	6,000	8,622	8,477	10,792	11,192	7,961	9,947	7,930	7,963	7,648
10	6,000	10,172	9,642	9,275	10,868	13,239	9,329	7,564	10,360	8,760
11	6,000	12,530	8,876	11,738	8,255	8,258	7,645	7,494	12,661	12,233
12	6,000	9,127	8,277	10,938	9,042	10,422	10,396	7,078	8,298	7,621
13	6,000	10,118	11,562	8,662	8,141	8,025	9,726	7,189	7,437	8,337
14	6,000	8,799	9,207	8,521	8,147	11,707	8,961	7,390	11,409	11,020
15	6,000	8,812	10,638	8,878	11,240	8,537	7,620	9,924	8,215	7,837
Mean	6,000	9,371	9,288	9,791	9,482	9,829	8,627	9,184	9,678	9,590
Std. Dev.	0	1,222	1,080	1,159	1,276	1,937	1,241	2,278	1,745	2,091
Maximum	6,000	12,530	11,562	11,738	11,240	13,239	10,944	12,706	12,661	13,517
Minimum	6,000	8,334	8,159	8,400	7,679	7,961	7,350	7,078	7,437	7,345
Range	0	4,196	3,403	3,338	3,561	5,278	3,594	5,628	5,224	6,172

TABLE LXIX (Continued)

Replication	Year									
	11	12	13	14	15	16	17	18	19	20
1	10,800	11,643	8,666	10,867	12,935	8,564	7,654	9,865	9,086	14,035
2	10,624	13,736	10,873	7,647	8,554	15,334	14,066	8,077	12,923	13,316
3	10,277	11,733	7,685	9,595	16,418	11,489	14,113	9,243	7,699	15,217
4	11,480	9,136	10,802	13,775	12,745	12,103	12,894	12,470	9,880	9,091
5	12,421	13,198	11,429	7,703	15,113	12,450	13,632	12,147	14,310	11,251
6	10,655	7,539	7,569	15,786	9,698	12,400	10,397	13,761	7,634	12,718
7	11,266	10,690	8,474	7,818	14,930	8,774	12,408	13,174	13,941	10,451
8	11,550	7,546	9,625	7,920	12,417	7,923	11,326	7,622	12,727	7,703
9	8,296	13,495	12,285	8,241	10,112	14,079	10,934	7,777	13,529	7,680
10	13,965	10,610	9,122	14,886	8,824	15,665	12,711	13,262	14,954	15,415
11	7,582	12,933	8,206	12,542	9,810	12,814	8,838	16,596	12,799	12,224
12	10,814	8,460	9,373	10,832	7,453	9,552	9,656	10,666	7,707	9,714
13	11,710	11,881	13,412	9,328	12,508	12,842	13,664	11,696	9,113	10,551
14	11,227	8,618	12,842	8,171	8,929	9,285	10,497	10,200	12,256	11,436
15	8,122	7,377	9,843	11,568	7,777	7,898	11,828	12,102	8,554	13,158
Mean	10,719	10,573	10,014	10,445	11,215	11,411	11,641	11,244	11,141	11,597
Std. Dev.	1,667	2,301	1,858	2,751	2,853	2,601	1,974	2,515	2,677	2,443
Maximum	13,965	13,736	13,412	15,786	16,418	15,665	14,113	16,596	14,954	15,415
Minimum	7,582	7,377	7,569	7,647	7,453	7,898	7,654	7,622	7,634	7,680
Range	6,383	6,359	5,843	8,139	8,965	7,767	6,459	8,974	7,320	7,735

TABLE LXX

SUMMARY OF NET WORTH FOR A 45 YEAR OLD FARM OPERATOR WITH A STARTING FARM SIZE OF 1,600 ACRES AND A BEGINNING TENURE STATUS OF A FULL OWNER

	Year									
Replication	1	2	3	4	5	6	7	8	9	10
1	208,934	213,573	217,355	231,345	250,331	264,404	282,104	301,784	321,708	335,662
2	197,424	213,462	221,879	234,718	254,668	280,385	284,692	306,759	325,204	325,966
3	198,989	216,587	225,606	249,378	267,315	283,494	291,818	312,433	322,596	340,974
4	206,067	210,250	229,903	242,767	258,668	272,818	280,181	305,788	328,633	352,501
5	207,189	217,044	234,218	247,816	271,030	295,744	308,182	334,530	352,532	370,340
6	204,047	213,072	220,471	231,663	243,534	266,731	296,132	306,969	319,300	340,558
7	197,178	213,961	218,385	227,842	242,547	253,770	264,518	275,434	301,388	334,670
8	210,945	217,601	223,964	233,318	237,579	251,657	258,013	276,267	294,205	303,132
9	202,049	208,836	209,900	225,232	252,631	260,289	280,812	291,007	299,376	314,956
10	207,013	223,054	242,725	263,631	283,322	309,123	320,444	329,485	352,168	372,638
11	195,652	214,264	227,599	241,171	250,352	271,130	280,785	295,481	315,878	335,905
12	211,030	221,435	230,022	251,569	265,529	277,532	295,045	301,772	315,788	323,207
13	204,186	217,482	233,621	243,802	257,435	263,551	283,873	290,861	299,329	307,531
14	211,447	225,614	235,772	244,792	260,896	284,770	306,637	313,924	341,594	365,973
15	200,808	207,728	224,946	236,148	259,744	280,177	295,067	315,446	330,547	344,775
Mean	204,197	215,598	226,424	240,346	257,039	274,372	288,554	303,863	321,350	337,919
Std. Dev.	5,339	5,045	8,354	10,294	11,878	15,497	16,171	16,713	18,233	21,313
Maximum	211,447	225,614	242,725	263,631	283,322	309,123	320,444	334,530	352,532	372,638
Minimum	195,652	207,728	209,900	225,232	237,579	251,657	258,013	275,434	294,205	303,132
Range	15,795	17,886	32,825	38,399	45,743	57,466	62,431	59,096	58,327	69,506

TABLE LXX (Continued)

Replication	Year									
	11	12	13	14	15	16	17	18	19	20
1	364,019	394,638	413,476	441,149	464,106	479,157	485,365	498,772	518,970	552,284
2	344,345	372,327	392,210	402,921	415,974	450,486	481,559	496,734	519,320	539,953
3	361,974	374,397	383,238	403,402	445,419	471,120	492,967	505,663	510,683	537,078
4	370,309	390,405	417,078	448,304	466,905	499,311	514,944	540,437	552,859	567,351
5	389,909	418,308	434,850	441,889	474,590	489,977	515,286	542,546	573,375	591,515
6	356,902	369,066	372,973	408,378	425,156	450,258	474,522	505,019	504,264	534,694
7	362,222	376,334	390,387	408,764	441,484	460,250	477,831	512,433	530,116	557,669
8	320,349	322,597	345,591	360,960	381,204	393,732	420,764	427,933	461,775	477,528
9	324,065	355,777	372,272	387,102	408,274	430,542	454,279	472,066	503,096	590,872
10	399,284	426,305	449,402	485,449	498,847	533,942	552,916	582,131	605,811	630,556
11	340,666	361,257	375,036	411,222	433,821	452,568	461,682	497,906	524,151	553,734
12	346,856	360,782	377,786	401,697	412,514	434,509	460,379	484,334	492,057	508,828
13	328,382	348,370	373,836	390,114	412,029	435,603	460,200	485,093	505,250	525,544
14	382,659	394,533	421,303	431,025	445,161	460,585	477,562	499,669	524,510	550,760
15	358,693	359,700	376,946	399,918	419,384	432,937	450,812	486,025	502,826	529,494
Mean	356,709	374,986	393,092	414,820	436,325	458,332	478,738	502,451	521,938	549,857
Std. Dev.	23,278	26,735	28,149	30,279	30,569	33,635	31,774	34,812	34,518	36,577
Maximum	399,284	426,305	449,402	485,449	498,847	533,942	552,916	582,131	605,811	630,556
Minimum	320,349	322,597	345,591	360,960	381,204	393,732	420,764	427,933	461,775	477,528
Range	78,935	103,708	103,811	124,489	117,643	140,210	132,152	154,198	144,036	153,028

TABLE LXXI

SUMMARY OF NET FARM INCOME FOR A 25 YEAR OLD FARM OPERATOR WITH A STARTING FARM SIZE OF 1,600 ACRES AND A BEGINNING TENURE STATUS OF A PART OWNER

	Year									
Replication	1	2	3	4	5	6	7	8	9	10
1	12,188	7,701	5,934	26,954	34,665	20,971	27,487	30,199	34,324	24,959
2	- 2,339	22,965	11,146	18,664	30,809	41,642	9,977	37,438	25,475	- 1,708
3	- 396	25,226	11,133	37,331	24,584	22,715	9,464	34,830	13,885	28,856
4	9,791	14,353	27,234	18,507	35,055	40,488	17,403	43,954	27,495	23,963
5	8,331	5,564	31,707	21,605	25,388	18,932	7,669	41,371	36,521	36,617
6	5,718	11,415	9,147	14,998	14,357	33,369	43,805	12,912	15,124	31,161
7	- 2,636	27,757	5,098	11,677	22,322	15,333	11,594	11,484	38,909	52,225
8	14,909	11,048	9,891	14,654	5,581	22,526	7,223	31,974	32,149	4,223
9	3,259	8,362	877	24,314	41,666	8,071	30,095	11,395	8,730	19,538
10	9,572	25,782	29,904	30,236	30,270	42,991	15,702	9,160	34,150	28,011
11	- 4,497	31,675	17,712	23,285	10,739	28,358	10,303	19,038	34,602	31,793
12	15,094	17,813	13,506	40,153	24,766	22,093	31,128	647	23,506	11,028
13	5,884	20,979	26,959	12,760	16,936	6,257	29,638	6,464	8,756	8,755
14	15,629	25,490	17,034	13,753	26,672	43,653	32,243	3,426	51,467	33,791
15	1,780	8,768	27,060	14,332	36,420	28,178	18,227	31,495	21,816	17,482
Mean	6,152	17,660	16,289	21,548	25,349	26,372	20,131	21,719	27,127	23,380
Std. Dev.	6,792	8,564	9,993	8,889	10,112	12,118	11,373	14,730	12,075	13,922
Maximum	15,629	31,675	31,707	40,153	41,666	43,653	43,805	43,954	51,467	52,225
Minimum	- 4,497	5,564	877	11,677	5,581	6,257	7,223	647	8,730	- 1,708
Range	20,126	26,111	30,830	28,476	36,085	37,396	36,582	43,307	42,737	53,933

TABLE LXXI (Continued)

Replication	Year									
	11	12	13	14	15	16	17	18	19	20
1	45,534	50,232	25,504	42,856	39,876	23,831	6,879	22,202	32,255	58,991
2	28,926	46,238	30,454	11,555	18,093	56,967	50,429	25,143	43,180	40,925
3	31,523	21,286	9,062	29,069	69,022	39,390	37,680	22,769	7,305	52,741
4	37,700	47,874	28,949	8,978	56,857	28,764	44,186	51,678	60,402	36,591
5	28,761	28,336	39,785	50,238	31,618	49,555	27,357	46,950	21,861	25,725
6	26,044	14,043	2,955	58,665	23,582	39,821	35,877	56,641	- 998	55,132
7	40,951	22,184	19,023	24,119	54,264	25,986	29,388	61,797	37,161	47,744
8	27,506	- 647	36,312	20,515	34,963	14,756	44,006	4,667	54,815	20,668
9	9,706	49,778	27,708	17,965	29,938	37,262	34,921	26,710	55,950	9,846
10	44,507	40,001	32,485	58,477	18,947	58,236	31,744	46,732	41,742	43,512
11	3,310	34,298	18,270	54,741	32,895	31,572	11,038	68,821	48,251	53,254
12	49,460	24,274	32,000	55,310	16,240	48,998	57,336	63,524	16,405	44,977
13	32,286	30,603	41,665	21,480	34,312	37,241	40,537	43,078	33,567	36,708
14	24,190	14,622	42,753	10,963	20,118	22,054	25,894	32,608	39,606	40,079
15	19,255	- 829	25,920	35,641	25,109	16,095	28,991	60,327	28,399	49,997
Mean	29,977	28,153	27,523	33,371	33,722	35,369	33,751	42,243	34,660	41,126
Std. Dev.	12,860	16,913	11,414	18,534	15,567	13,816	13,369	18,950	17,775	13,669
Maximum	49,460	50,232	42,753	58,665	69,022	58,236	57,336	68,821	60,402	58,991
Minimum	3,310	- 829	2,955	8,978	16,240	14,756	6,879	4,667	- 998	9,846
Range	46,150	51,061	39,798	49,687	52,782	43,480	50,457	64,154	61,400	49,145

TABLE LXXII

SUMMARY OF CONSUMPTION FOR A 25 YEAR OLD FARM OPERATOR WITH A STARTING FARM SIZE OF 1,600 ACRES AND A BEGINNING TENURE STATUS OF A PART OWNER

	Year									
Replication	1	2	3	4	5	6	7	8	9	10
1	6,000	7,448	7,965	11,245	12,052	9,664	9,467	9,563	12,581	13,261
2	6,000	7,513	8,442	9,489	11,349	13,470	8,553	13,820	9,653	8,544
3	6,000	7,570	7,824	10,906	8,841	9,158	9,021	13,454	10,526	12,810
4	6,000	7,991	9,548	8,098	10,774	13,560	10,636	13,908	10,122	8,872
5	6,000	7,085	10,317	10,006	10,876	8,994	8,851	13,838	13,480	13,013
6	6,000	7,358	8,089	8,650	8,809	10,121	12,147	8,855	8,763	11,385
7	6,000	10,221	7,905	8,088	10,597	10,186	8,776	8,830	12,784	14,712
8	6,000	7,295	7,766	7,977	8,524	10,740	8,762	12,692	13,483	8,821
9	6,000	7,323	7,804	10,117	11,771	8,539	11,150	9,131	9,161	8,843
10	6,000	8,873	8,969	8,601	11,448	13,817	10,533	8,765	11,559	9,957
11	6,000	11,230	8,203	11,064	8,835	8,835	8,848	8,695	13,860	13,429
12	6,000	9,130	7,874	11,920	11,023	12,409	13,100	8,510	10,646	9,969
13	6,000	8,818	10,889	7,988	8,721	8,603	10,929	8,390	8,635	9,533
14	6,000	7,632	9,851	8,077	8,843	13,905	11,430	8,768	14,275	12,222
15	6,000	7,513	9,965	8,204	11,820	9,115	8,823	11,125	9,413	9,035
Mean	6,000	8,200	8,761	9,362	10,286	10,741	10,068	10,556	11,263	10,960
Std. Dev.	0	1,218	1,071	1,401	1,347	2,083	1,451	2,293	1,993	2,102
Maximum	6,000	11,230	10,889	11,920	12,052	13,905	13,100	13,908	14,275	14,712
Minimum	6,000	7,085	7,766	7,977	8,524	8,539	8,553	8,390	8,635	8,544
Range	0	4,145	3,123	3,943	3,528	5,366	4,547	5,518	5,640	6,168

TABLE LXXII (Continued)

	Year									
Replication	11	12	13	14	15	16	17	18	19	20
1	13,344	14,300	10,895	13,235	15,560	10,637	8,907	11,972	11,115	16,607
2	11,820	14,929	12,065	8,837	9,740	16,519	15,248	9,990	15,377	15,809
3	11,472	12,926	8,876	10,784	17,604	12,672	15,294	11,277	8,913	17,917
4	13,618	14,394	12,622	8,895	16,303	13,638	14,818	14,510	16,923	13,516
5	12,675	10,328	11,992	14,963	13,931	13,286	14,075	14,866	11,986	11,111
6	11,849	8,731	8,758	16,972	10,882	13,582	11,576	16,299	8,887	15,141
7	12,458	11,880	9,662	9,004	16,114	9,956	13,587	15,649	16,498	12,618
8	14,189	8,838	11,986	9,922	14,970	9,915	13,734	8,868	15,152	9,088
9	9,489	14,686	13,473	9,426	11,295	15,259	12,111	9,651	16,039	8,903
10	15,159	11,802	10,311	16,073	10,009	16,847	13,891	14,440	16,129	16,587
11	8,776	14,124	9,394	13,729	10,994	13,996	10,017	19,444	15,228	14,581
12	15,131	12,002	13,212	16,718	9,396	14,791	14,944	17,983	12,230	16,395
13	12,903	13,072	14,600	10,514	13,691	14,022	14,841	14,004	11,127	12,730
14	12,425	9,814	14,035	9,362	10,117	10,472	11,681	11,382	13,436	12,614
15	9,317	8,570	11,034	12,756	8,963	9,082	13,010	14,461	10,517	15,633
Mean	12,308	12,026	11,528	12,079	12,638	12,978	13,182	13,653	13,304	13,950
Std. Dev.	1,954	2,290	1,873	3,018	2,930	2,458	1,952	3,080	2,792	2,755
Maximum	15,159	14,929	14,600	16,972	17,604	16,847	15,294	19,444	16,923	17,917
Minimum	8,776	8,570	8,758	8,837	8,963	9,082	8,907	8,868	8,887	8,903
Range	6,383	6,359	5,842	8,135	8,641	7,765	6,387	10,576	8,036	9,014

TABLE LXXIII

SUMMARY OF NET WORTH FOR A 25 YEAR OLD FARM OPERATION WITH A STARTING FARM SIZE OF 1,600 ACRES AND A BEGINNING TENURE STATUS OF A PART OWNER

	Year									
Replication	1	2	3	4	5	6	7	8	9	10
1	96,095	98,166	98,367	109,994	126,555	136,814	150,792	166,626	182,413	191,801
2	84,076	97,451	101,192	109,796	124,284	144,451	147,542	164,333	177,723	170,893
3	85,832	100,670	105,018	124,456	138,059	150,086	152,319	167,597	171,774	183,395
4	94,166	100,938	114,464	124,336	142,456	161,702	168,190	189,583	202,912	216,007
5	92,972	93,623	109,600	119,766	131,866	141,319	142,212	161,815	178,285	195,290
6	90,810	95,984	98,525	105,290	111,565	129,124	152,171	157,286	164,172	178,878
7	83,792	96,833	96,151	100,933	111,216	116,846	121,031	125,073	143,959	170,503
8	98,124	103,054	106,737	113,898	113,372	123,670	124,291	138,275	151,594	149,646
9	88,820	91,533	87,498	99,377	121,260	122,811	136,984	140,652	142,121	152,203
10	93,982	106,949	122,976	139,611	153,612	174,403	179,733	181,963	198,646	212,512
11	81,969	96,822	105,777	116,004	119,417	134,654	137,727	147,562	162,271	175,387
12	98,272	106,421	112,814	133,270	144,830	153,124	165,840	161,260	172,318	174,844
13	90,951	101,668	113,404	119,136	127,417	127,375	141,439	141,784	143,802	144,920
14	98,653	112,650	119,741	126,131	141,120	162,299	177,488	174,948	201,384	217,146
15	87,619	90,486	103,219	109,895	127,952	142,781	151,916	167,121	178,195	186,597
Mean	91,076	99,550	106,366	116,793	128,999	141,431	149,978	159,058	171,438	181,335
Std. Dev.	5,576	6,029	9,437	11,490	12,881	16,559	17,312	17,533	20,336	22,806
Maximum	98,653	112,650	122,976	139,611	153,612	174,403	179,733	189,583	202,912	217,146
Minimum	81,969	90,486	87,498	99,377	111,216	116,846	121,031	125,073	142,121	144,920
Range	16,684	22,164	35,478	40,234	42,396	57,557	58,702	64,510	60,791	72,226

TABLE LXXIII (Continued)

Replication	Year 11	12	13	14	15	16	17	18	19	20
1	214,646	240,167	252,337	273,613	290,168	301,397	301,637	310,451	325,965	355,486
2	183,554	205,570	219,086	223,180	231,041	259,193	283,908	296,708	315,825	333,136
3	198,274	205,517	207,553	221,354	256,851	276,193	291,683	301,633	301,936	325,647
4	232,938	256,668	268,544	270,490	298,528	309,256	329,906	356,258	386,229	402,714
5	206,728	220,455	240,763	265,625	277,864	303,913	313,190	335,782	344,068	356,191
6	190,383	196,483	193,634	222,555	233,185	251,929	269,838	297,976	291,253	319,462
7	191,184	200,077	208,934	222,017	248,377	261,732	272,958	305,458	319,121	344,533
8	158,916	152,852	170,665	180,370	193,978	199,470	221,074	219,459	247,179	257,837
9	154,131	178,940	189,072	197,396	211,061	226,285	242,972	257,180	284,829	287,478
10	232,802	253,456	270,188	299,873	308,074	336,811	349,429	372,291	389,621	408,017
11	172,736	186,961	195,558	224,897	240,992	253,382	255,872	289,634	312,552	339,968
12	198,979	209,184	222,666	249,426	256,272	280,414	310,407	341,816	345,960	365,603
13	158,918	171,535	190,588	200,395	214,813	231,259	249,259	269,926	286,372	303,726
14	226,862	232,347	252,748	255,826	264,774	274,975	286,534	302,283	320,769	340,666
15	195,982	190,020	202,247	218,806	232,357	239,651	251,170	283,799	297,134	321,153
Mean	194,469	206,682	218,972	235,055	250,556	267,057	281,989	302,710	317,921	337,441
Std. Dev.	25,867	29,739	31,119	32,894	33,110	36,132	35,148	38,791	37,681	39,184
Maximum	232,938	256,668	270,188	299,873	308,074	336,811	349,429	372,291	389,621	408,017
Minimum	154,131	152,852	170,665	180,370	193,978	199,470	221,074	219,459	247,179	257,837
Range	78,807	103,816	99,523	119,503	114,096	137,341	128,355	152,832	142,442	150,180

TABLE LXXIV

SUMMARY OF NET FARM INCOME FOR A 45 YEAR OLD FARM OPERATOR WITH A STARTING FARM SIZE OF 1,600 ACRES AND A BEGINNING TENURE STATUS OF A PART OWNER

	Year									
Replication	1	2	3	4	5	6	7	8	9	10
1	12,188	7,711	5,864	26,840	34,509	20,842	27,468	30,199	34,324	25,056
2	- 2,339	22,965	11,078	18,554	30,658	35,673	8,281	32,361	27,009	4,953
3	- 396	25,233	11,076	37,245	24,458	22,615	9,387	34,812	13,936	28,104
4	9,791	14,366	27,173	18,420	35,055	40,397	17,338	43,949	27,495	24,081
5	8,331	5,576	31,640	21,512	25,259	18,899	7,669	41,371	36,521	36,736
6	5,718	11,426	9,081	14,890	14,202	33,240	43,703	12,880	15,165	31,260
7	- 2,636	27,757	5,028	11,560	22,161	12,949	9,957	10,014	33,396	45,913
8	14,909	11,061	9,837	14,561	5,438	21,508	6,334	31,086	31,261	3,761
9	3,259	8,370	809	24,199	41,514	6,388	25,908	10,006	7,608	16,462
10	9,572	25,795	29,932	30,236	30,270	42,987	15,728	9,160	34,150	28,230
11	- 4,497	31,675	17,641	23,177	10,594	28,243	10,228	19,026	34,653	31,917
12	15,094	17,826	13,447	40,153	24,735	22,001	31,068	645	23,578	11,157
13	5,884	20,989	26,902	12,664	16,814	6,162	29,578	6,463	8,836	8,918
14	15,629	25,503	17,059	13,753	26,672	43,577	32,194	3,426	51,562	33,791
15	1,780	8,777	26,991	14,224	36,270	24,185	15,924	27,371	19,004	15,739
Mean	6,152	17,669	16,237	21,466	25,241	25,311	19,384	20,851	26,567	23,072
Std. Dev.	6,792	8,561	10,003	8,907	10,125	12,027	11,454	14,328	11,971	12,440
Maximum	15,629	31,675	31,640	40,153	41,514	43,577	43,703	43,949	51,562	45,913
Minimum	- 4,497	5,576	809	11,560	5,438	6,162	6,334	645	7,608	3,761
Range	20,126	26,099	30,831	28,593	36,076	37,415	37,369	43,304	43,954	42,152

TABLE LXXIV (Continued)

Replication	Year									
	11	12	13	14	15	16	17	18	19	20
1	45,534	50,232	25,504	42,856	39,876	23,831	6,879	22,202	32,255	58,991
2	25,869	41,028	25,869	10,020	21,223	53,694	45,034	22,381	39,388	37,218
3	31,163	22,558	10,914	29,089	68,827	40,636	40,045	23,741	9,302	55,106
4	37,700	47,874	28,949	8,978	56,857	28,764	44,186	51,678	60,402	36,591
5	28,761	28,336	39,785	50,238	31,618	49,555	27,357	46,950	21,861	25,725
6	26,141	14,043	2,955	58,970	23,976	39,821	35,877	56,641	- 998	55,132
7	39,197	22,782	21,725	28,252	51,313	22,481	26,271	56,440	33,994	42,849
8	28,190	282	38,098	20,511	34,737	14,656	44,776	5,326	55,559	20,668
9	8,159	43,300	26,627	21,964	30,736	36,529	31,168	24,213	51,318	8,589
10	44,798	40,001	32,485	58,477	18,947	58,236	31,744	46,732	41,742	43,512
11	3,493	34,298	18,270	55,129	33,096	31,572	11,038	69,490	48,614	53,254
12	49,666	24,274	32,000	55,310	16,240	48,998	57,336	63,524	16,405	44,977
13	32,538	30,892	41,734	21,910	34,819	37,834	40,876	43,841	34,396	36,708
14	24,190	14,622	42,753	10,963	20,118	22,054	25,894	32,608	39,606	40,079
15	17,382	- 468	23,243	32,971	28,908	20,063	28,792	57,835	30,426	47,860
Mean	29,519	27,604	27,394	33,709	34,086	35,248	33,152	41,573	34,285	40,484
Std. Dev.	13,106	15,825	11,235	18,375	14,910	13,359	13,189	18,696	17,118	13,865
Maximum	49,666	50,232	42,753	58,970	68,827	58,236	57,336	69,490	60,402	58,991
Minimum	3,493	- 468	2,955	8,978	16,240	14,656	6,879	5,326	- 998	8,589
Range	46,173	50,700	39,798	49,992	52,587	43,580	50,457	64,164	61,400	50,402

TABLE LXXV

SUMMARY OF CONSUMPTION FOR A 45 YEAR OLD FARM OPERATOR WITH A STARTING FARM SIZE OF 1,600 ACRES AND A BEGINNING TENURE STATUS OF A PART OWNER

	Year									
Replication	1	2	3	4	5	6	7	8	9	10
1	6,000	8,704	8,592	11,872	11,424	9,035	8,211	8,307	11,326	12,006
2	6,000	8,768	9,069	10,116	10,720	11,289	7,076	10,966	7,599	7,093
3	6,000	8,825	8,451	11,533	8,212	8,530	7,765	12,198	9,271	11,555
4	6,000	9,247	10,175	8,725	10,146	12,932	9,380	12,652	8,867	7,617
5	6,000	8,340	10,945	10,633	10,248	8,366	7,595	12,583	12,225	11,758
6	6,000	8,614	8,656	9,277	8,181	9,493	10,891	7,600	7,507	10,130
7	6,000	11,476	8,533	8,715	9,969	8,472	7,364	7,465	10,075	11,942
8	6,000	8,551	8,394	8,604	7,895	10,111	7,505	11,436	12,227	7,565
9	6,000	8,579	8,431	10,744	11,143	7,691	8,672	7,559	7,563	7,503
10	6,000	10,129	9,597	9,229	10,820	13,189	9,277	7,510	10,305	8,703
11	6,000	12,486	8,831	11,691	8,206	8,207	7,592	7,439	12,605	12,174
12	6,000	10,386	8,501	12,547	10,395	11,780	11,844	7,255	9,391	8,714
13	6,000	10,074	11,517	8,615	8,092	7,975	9,673	7,134	7,380	8,278
14	6,000	8,888	10,479	8,704	8,215	13,277	10,175	7,512	13,020	10,967
15	6,000	8,768	10,593	8,831	11,191	8,183	7,437	8,654	7,590	7,576
Mean	6,000	9,456	9,384	9,989	9,657	9,902	8,697	9,085	9,797	9,572
Std. Dev.	0	1,218	1,074	1,401	1,347	2,044	1,454	2,179	2,067	1,977
Maximum	6,000	12,486	11,517	12,547	11,424	13,277	11,844	12,652	13,020	12,174
Minimum	6,000	8,340	8,394	8,604	7,895	7,691	7,076	7,134	7,380	7,093
Range	0	4,146	3,123	3,943	3,529	5,586	4,768	5,518	5,640	5,081

TABLE LXXV (Continued)

Replication	Year 11	12	13	14	15	16	17	18	19	20
1	12,089	13,046	9,641	11,981	14,307	9,383	7,654	10,719	9,863	15,355
2	9,424	12,141	9,639	7,478	7,701	13,725	12,596	8,003	12,847	13,239
3	10,217	11,671	7,622	9,530	16,351	11,420	14,042	10,026	7,663	16,668
4	12,363	13,139	11,368	7,641	15,050	12,385	13,566	13,258	15,672	12,264
5	11,421	9,074	10,738	13,710	12,677	12,033	12,822	13,614	10,734	9,860
6	10,594	7,476	7,504	15,718	9,629	12,329	10,324	15,046	7,635	13,889
7	9,977	9,464	7,617	7,595	13,365	7,898	11,127	13,096	13,862	10,370
8	12,933	7,583	10,732	8,668	13,716	8,662	12,482	7,616	13,900	7,837
9	7,595	11,926	10,856	7,609	9,081	12,605	9,803	7,697	13,447	7,597
10	13,905	10,548	9,058	14,820	8,756	15,595	12,639	13,188	14,877	15,336
11	7,522	12,870	8,140	12,475	9,741	12,743	8,765	18,192	13,976	13,330
12	13,876	10,748	11,958	15,465	8,143	13,538	13,691	16,731	10,978	15,144
13	11,648	11,818	13,346	9,260	12,438	12,770	13,589	12,753	9,876	11,480
14	11,171	8,560	12,782	8,109	8,864	9,219	10,428	10,130	12,184	11,362
15	7,600	7,120	8,726	10,378	7,594	7,609	10,602	12,027	8,478	13,082
Mean	10,822	10,479	9,982	10,696	11,161	11,461	11,609	12,140	11,733	12,454
Std. Dev.	2,125	2,120	1,894	3,071	2,938	2,358	1,956	3,160	2,626	2,722
Maximum	13,905	13,139	13,346	15,718	16,351	15,595	14,042	18,192	15,672	16,668
Minimum	7,522	7,120	7,504	7,478	7,594	7,609	7,654	7,616	7,635	7,597
Range	6,383	6,019	5,842	8,240	8,757	7,986	6,388	10,576	8,037	9,071

TABLE LXXVI

SUMMARY OF NET WORTH FOR A 45 YEAR OLD FARM OPERATOR WITH A STARTING FARM SIZE OF 1,600 ACRES AND A BEGINNING TENURE STATUS OF A PART OWNER

	Year									
Replication	1	2	3	4	5	6	7	8	9	10
1	96,222	97,295	96,944	108,050	124,939	135,578	150,420	167,133	183,797	194,070
2	84,076	96,593	99,807	107,907	122,725	140,586	143,475	159,085	174,208	174,334
3	85,926	99,959	103,789	122,727	136,622	148,953	152,057	168,201	173,358	185,314
4	94,326	100,170	113,214	122,599	141,159	160,778	168,122	190,389	204,595	218,637
5	93,132	92,785	108,275	117,988	130,336	140,248	142,148	162,629	179,975	197,943
6	90,943	95,153	97,171	103,355	109,949	127,855	151,707	157,739	165,594	181,248
7	83,792	95,955	94,695	98,914	109,456	114,858	118,834	122,759	140,005	164,397
8	98,309	102,278	105,407	112,051	111,898	121,883	122,505	136,728	150,286	148,964
9	88,924	90,683	86,064	97,468	119,681	120,544	133,802	137,625	139,499	148,274
10	94,141	107,300	122,909	139,105	153,545	174,771	181,009	184,214	201,774	216,674
11	81,969	95,944	104,427	114,185	117,982	133,575	137,559	148,288	163,910	177,992
12	98,458	105,712	111,615	131,632	143,556	152,256	165,807	162,284	174,168	177,775
13	91,084	100,947	112,204	117,388	126,063	126,455	141,354	142,707	145,768	148,000
14	98,835	113,012	119,633	125,581	140,036	161,600	177,632	176,125	203,506	220,145
15	87,730	89,628	101,873	108,019	126,408	140,123	148,607	162,936	173,497	181,695
Mean	91,191	98,894	105,202	115,131	127,624	140,004	149,003	158,589	171,596	182,364
Std. Dev.	5,637	6,351	9,775	11,832	13,181	17,048	18,168	18,420	21,550	24,196
Maximum	98,835	113,012	122,909	139,105	153,545	174,771	181,009	190,389	204,595	220,145
Minimum	81,969	89,628	86,064	97,468	109,456	114,858	118,834	122,759	139,499	148,000
Range	16,866	23,384	36,845	41,637	44,089	59,913	62,175	67,630	65,096	72,145

TABLE LXXVI (Continued)

Replication	Year									
	11	12	13	14	15	16	17	18	19	20
1	217,792	244,189	256,188	278,340	295,770	307,855	309,115	318,784	335,172	365,567
2	186,812	207,487	219,750	223,673	235,447	263,658	286,763	299,287	317,826	334,661
3	200,560	209,464	213,958	228,648	264,879	285,994	304,060	315,434	318,331	344,616
4	236,444	261,051	273,802	276,722	305,636	317,238	338,763	365,990	396,835	414,193
5	210,257	224,861	246,045	271,783	284,897	311,820	321,972	345,438	354,580	366,519
6	192,753	199,791	197,983	227,999	239,700	259,319	278,103	307,115	301,656	330,738
7	185,918	197,200	209,604	225,627	252,234	264,853	275,918	306,735	320,375	344,133
8	159,605	155,453	175,428	185,932	200,253	206,547	229,580	229,513	258,892	270,349
9	150,298	172,824	184,416	197,012	213,336	230,309	246,223	260,286	286,814	289,456
10	238,049	259,578	277,186	307,746	316,846	346,458	359,950	383,686	401,889	421,158
11	176,495	191,596	201,095	231,589	248,703	261,968	265,428	300,545	324,597	352,886
12	202,935	213,994	228,352	255,987	263,767	288,783	319,650	351,934	357,009	377,525
13	163,056	176,757	196,736	207,639	223,297	241,045	260,163	282,252	300,168	318,395
14	230,717	237,086	258,363	262,412	272,259	283,315	294,806	311,430	330,790	351,561
15	191,103	186,849	199,224	215,862	232,108	243,418	256,822	289,712	306,167	330,820
Mean	196,186	209,212	222,542	239,798	256,609	274,172	289,821	311,209	327,407	347,505
Std. Dev.	27,328	31,403	32,525	34,219	34,126	37,010	36,125	39,659	38,251	40,019
Maximum	238,049	261,051	277,186	307,746	316,846	346,458	359,950	383,686	401,889	421,158
Minimum	150,298	155,453	175,428	185,932	200,253	206,547	229,580	229,513	258,892	270,349
Range	87,751	105,598	101,758	121,814	116,593	139,911	130,370	154,173	142,997	150,809

TABLE LXXVII

SUMMARY OF NET FARM INCOME FOR A 25 YEAR OLD FARM OPERATOR WITH A STARTING FARM SIZE OF 1,600 ACRES AND A BEGINNING TENURE STATUS OF A FULL TENANT

	Year									
Replication	1	2	3	4	5	6	7	8	9	10
1	9,311	4,310	2,340	23,154	30,761	16,612	22,818	25,530	29,655	19,794
2	- 5,216	20,435	8,331	15,698	27,698	38,122	- 1,274	31,759	20,944	- 6,868
3	- 3,274	22,710	8,329	33,854	21,200	18,287	4,961	30,071	9,389	24,154
4	5,454	2,170	28,116	17,803	21,460	14,262	3,000	36,702	32,371	31,818
5	6,914	10,960	23,656	14,210	30,646	36,124	13,332	39,688	23,129	19,344
6	2,841	8,924	6,344	12,040	11,249	29,837	40,089	7,576	9,701	25,738
7	- 5,513	5,968	2,348	8,776	19,265	11,872	7,939	7,620	34,821	47,891
8	12,032	7,675	6,322	10,383	1,653	18,080	2,513	26,954	24,182	- 295
9	381	5,869	- 1,931	21,334	38,554	4,548	26,356	7,110	4,578	15,151
10	6,695	22,391	26,431	25,827	25,861	38,784	11,795	5,011	29,481	22,862
11	- 7,374	29,140	14,880	20,056	7,626	24,811	6,010	14,406	29,502	27,315
12	12,217	14,439	9,960	35,744	20,357	17,671	23,790	- 3,581	18,257	5,441
13	3,006	18,487	24,174	9,482	13,277	1,764	25,102	1,765	3,763	3,406
14	12,752	22,118	12,976	9,344	22,263	39,277	28,137	- 723	43,717	29,642
15	- 1,098	6,274	24,250	11,472	33,416	24,425	13,499	25,674	15,971	12,257
Mean	3,275	13,458	13,102	17,945	21,686	22,298	15,204	17,037	21,964	18,510
Std. Dev.	6,793	8,443	9,889	8,692	10,090	12,151	11,899	14,475	11,706	14,127
Maximum	12,752	29,140	28,116	35,744	38,554	39,277	40,089	39,688	43,717	47,891
Minimum	- 7,374	2,170	- 1,931	8,776	1,653	1,764	- 1,274	- 3,581	3,763	- 6,868
Range	20,126	26,970	30,047	26,968	36,901	37,513	41,363	43,269	39,954	54,759

TABLE LXXVII (Continued)

	Year									
Replication	11	12	13	14	15	16	17	18	19	20
1	41,050	46,083	21,355	38,707	35,727	19,682	2,730	18,053	27,890	54,842
2	22,912	40,510	26,305	6,072	11,873	50,729	44,552	18,618	36,665	34,411
3	26,838	17,137	4,913	23,752	63,214	34,709	33,531	17,071	2,247	47,576
4	24,612	24,187	35,636	46,089	27,469	45,406	23,208	42,801	17,712	21,576
5	30,062	43,477	24,800	4,249	51,326	24,061	39,883	45,795	55,704	32,442
6	20,583	9,276	- 1,754	47,050	14,444	29,709	26,019	45,030	- 7,709	43,479
7	35,482	15,670	12,509	17,604	47,750	19,472	22,874	55,547	30,647	41,230
8	23,357	- 4,796	32,162	14,938	28,780	8,295	38,001	- 1,645	47,890	13,906
9	4,062	44,011	21,194	13,027	24,726	31,704	29,265	20,772	49,734	3,320
10	39,176	35,351	28,338	54,328	14,798	54,087	27,595	42,466	37,592	39,363
11	- 2,698	27,784	11,756	48,899	26,582	25,058	4,524	62,483	41,598	46,740
12	43,549	19,813	27,851	49,984	10,980	44,848	53,186	58,988	12,256	40,828
13	26,597	25,258	36,296	16,684	29,077	31,780	34,362	37,039	27,227	30,194
14	20,041	10,474	38,604	6,814	15,968	17,905	21,744	27,267	34,804	35,930
15	14,546	- 5,538	21,211	26,757	22,682	14,708	23,422	51,516	23,291	40,725
Mean	24,678	23,246	22,745	27,664	28,360	30,144	28,326	36,120	29,170	35,104
Std. Dev.	12,842	16,716	11,694	18,049	15,417	13,690	13,426	18,568	17,597	13,485
Maximum	43,549	46,083	38,604	54,328	63,214	54,087	53,186	62,483	55,704	54,842
Minimum	- 2,698	- 5,538	- 1,754	4,249	10,980	8,295	2,730	- 1,645	- 7,709	3,320
Range	46,247	51,621	40,358	50,079	52,234	45,792	50,456	64,128	63,413	51,522

TABLE LXXVIII

SUMMARY OF CONSUMPTION FOR A 25 YEAR OLD FARM OPERATOR WITH A STARTING FARM SIZE OF 1,600 ACRES AND A BEGINNING TENURE STATUS OF A FULL TENANT

	Year									
Replication	1	2	3	4	5	6	7	8	9	10
1	6,000	7,425	7,940	11,219	12,026	9,637	9,439	9,534	12,551	13,230
2	6,000	7,489	8,418	9,464	11,323	13,444	8,526	13,789	9,620	8,510
3	6,000	7,546	7,800	10,881	8,815	9,131	8,993	13,424	10,496	12,778
4	6,000	7,061	10,293	9,981	10,850	8,967	8,822	13,808	13,449	12,980
5	6,000	7,967	9,524	8,073	10,748	13,533	10,607	13,878	10,091	8,841
6	6,000	7,335	8,005	8,625	8,784	10,094	12,119	8,827	8,732	11,353
7	6,000	10,197	7,881	8,063	10,572	10,160	8,749	8,802	12,754	14,682
8	6,000	7,272	7,742	7,952	8,497	10,712	8,733	12,661	13,451	8,787
9	6,000	7,300	7,780	10,092	11,745	8,512	11,122	9,102	9,131	8,812
10	6,000	8,850	8,945	8,576	11,423	13,791	10,505	8,737	11,529	9,926
11	6,000	11,207	8,179	11,039	8,809	8,808	8,821	8,666	13,830	13,398
12	6,000	9,107	7,849	11,895	10,997	12,381	13,072	8,480	10,614	9,935
13	6,000	8,795	10,865	7,963	8,695	8,577	10,902	8,361	8,605	9,501
14	6,000	7,609	9,827	8,052	8,816	13,878	11,402	8,738	14,244	12,189
15	6,000	7,489	9,941	8,179	11,794	9,088	8,796	11,097	9,384	9,004
Mean	6,000	8,177	8,733	9,337	10,260	10,714	10,041	10,527	11,232	10,928
Std. Dev.	0	1,218	1,074	1,401	1,347	2,083	1,451	2,292	1,993	2,103
Maximum	6,000	11,207	10,865	11,895	12,026	13,878	13,072	13,878	14,244	14,682
Minimum	6,000	7,061	7,742	7,952	8,497	8,512	8,526	8,361	8,605	8,510
Range	0	4,146	3,123	3,943	3,529	5,366	4,546	5,517	5,639	6,172

TABLE LXXVIII (Continued)

	Year									
Replication	11	12	13	14	15	16	17	18	19	20
1	13,311	14,266	10,860	13,199	15,523	10,598	8,867	11,931	11,073	16,564
2	11,784	14,892	12,026	8,797	9,699	16,476	15,203	9,943	15,329	15,760
3	11,439	12,892	8,841	10,747	17,566	12,633	15,254	11,235	8,870	17,873
4	12,641	10,294	11,957	14,927	13,893	13,247	14,035	14,825	11,944	11,068
5	13,585	14,359	12,586	8,858	16,265	13,598	14,778	14,468	16,880	13,471
6	11,816	8,696	8,722	15,340	9,920	12,326	10,537	14,892	8,761	13,840
7	12,426	11,846	9,627	8,967	16,075	9,915	13,545	15,605	16,452	12,571
8	14,153	8,802	11,949	9,883	14,930	9,873	13,691	8,823	15,104	9,039
9	9,457	14,652	13,437	9,389	11,256	15,220	12,070	9,609	15,995	8,857
10	15,127	11,768	10,276	16,037	9,971	16,809	13,852	14,399	16,087	16,544
11	8,744	14,089	9,358	13,690	10,954	13,955	9,975	19,399	15,181	14,533
12	15,096	11,965	13,174	16,679	9,355	14,749	14,900	17,938	12,185	16,348
13	12,869	13,037	14,564	10,477	13,652	13,982	14,800	13,961	11,082	12,684
14	12,391	9,778	13,999	9,324	10,078	10,431	11,640	11,340	13,392	12,568
15	9,284	8,536	10,998	11,598	8,812	8,826	11,817	13,241	9,690	14,292
Mean	12,275	11,991	11,492	11,861	12,530	12,843	12,998	13,441	13,202	13,734
Std. Dev.	1,954	2,290	1,873	2,851	2,989	2,481	2,052	3,006	2,863	2,696
Maximum	15,127	14,892	14,564	16,679	17,566	16,809	15,254	19,399	16,880	17,873
Minimum	8,744	8,536	8,722	8,797	8,812	8,826	8,867	8,823	8,761	8,857
Range	6,383	6,356	5,842	7,882	8,754	7,983	6,387	10,576	8,119	9,016

TABLE LXXIX

SUMMARY OF NET WORTH FOR A 25 YEAR OLD FARM OPERATOR WITH A STARTING FARM SIZE OF 1,600 ACRES AND A BEGINNING TENURE STATUS OF A FULL TENANT

	Year									
Replication	1	2	3	4	5	6	7	8	9	10
1	35,263	34,525	31,805	41,775	55,551	62,705	74,438	87,989	100,444	106,340
2	22,751	34,471	36,223	42,683	54,957	72,615	66,227	78,960	89,241	77,363
3	24,693	37,839	40,209	57,168	68,454	77,328	75,581	87,462	88,156	97,492
4	32,104	30,022	43,438	50,938	60,394	66,435	63,499	79,771	93,284	106,867
5	33,312	37,496	49,548	56,256	71,227	87,358	90,811	109,163	120,484	130,414
6	29,977	33,154	33,665	38,206	42,100	57,143	77,542	78,381	81,061	92,951
7	22,454	34,664	32,010	34,496	42,634	45,628	46,853	47,753	63,725	87,180
8	37,468	39,693	40,449	44,323	40,586	47,715	44,460	54,860	63,545	57,819
9	27,973	28,651	22,370	32,240	51,908	50,538	63,006	63,191	61,224	68,083
10	33,143	44,828	58,379	72,830	84,623	102,411	104,782	103,557	116,909	128,189
11	20,592	33,643	40,784	48,866	49,761	63,488	63,036	69,493	80,559	90,483
12	37,619	43,344	46,964	64,270	72,776	77,982	86,583	78,022	85,389	83,334
13	30,113	39,063	50,087	53,227	58,798	55,079	66,685	63,181	61,074	57,777
14	37,995	50,710	54,778	57,713	69,731	87,787	100,048	93,966	114,852	127,660
15	26,748	27,580	39,587	44,111	60,030	73,264	78,914	91,012	97,905	102,369
Mean	30,147	36,646	41,353	49,273	58,902	68,498	73,498	79,117	87,857	94,288
Std. Dev.	5,802	6,275	9,559	11,220	12,705	16,333	17,274	17,289	20,060	23,559
Maximum	37,995	50,710	58,379	72,830	84,623	102,411	104,782	109,163	120,484	130,414
Minimum	20,592	27,580	22,370	32,240	40,586	45,628	44,460	47,753	61,074	57,777
Range	17,403	23,130	36,009	40,590	44,037	56,783	60,322	61,410	59,410	72,637

TABLE LXXIX (Continued)

Replication	Year 11	12	13	14	15	16	17	18	19	20
1	125,989	148,557	157,920	176,245	189,850	198,289	195,188	201,076	213,489	240,066
2	86,573	104,503	116,028	115,653	118,859	142,563	163,091	171,415	186,140	198,811
3	109,031	113,301	111,922	123,067	154,420	170,432	182,976	188,850	184,996	205,033
4	116,442	128,287	145,642	167,554	176,843	199,943	207,381	227,027	232,452	241,779
5	141,879	162,479	172,502	170,527	194,622	203,067	220,659	242,818	269,450	282,992
6	100,566	102,964	95,946	118,136	123,120	135,839	148,637	169,822	156,852	177,972
7	103,955	108,195	112,242	120,809	142,518	151,476	159,146	187,189	196,207	216,976
8	65,254	55,155	70,018	75,634	84,830	85,247	102,571	95,520	118,551	124,233
9	65,386	86,077	92,737	97,412	108,459	119,720	132,376	142,595	165,813	163,104
10	144,673	162,012	175,792	202,526	207,745	233,533	243,204	263,035	277,419	292,871
11	82,541	92,110	95,847	121,019	133,576	142,346	139,541	168,784	186,958	209,732
12	103,249	110,361	120,894	143,857	146,712	167,909	194,957	223,144	224,176	240,879
13	68,681	78,522	93,746	100,116	111,054	123,609	137,204	153,565	165,491	178,201
14	134,525	136,812	154,262	153,971	159,918	167,190	176,077	188,024	203,096	220,051
15	108,071	97,497	106,610	118,907	131,004	137,545	147,366	174,872	186,719	205,404
Mean	103,788	112,455	121,474	133,696	145,569	158,581	170,025	186,516	197,854	213,207
Std. Dev.	26,345	30,531	32,205	34,441	35,190	38,570	37,687	41,816	41,585	43,770
Maximum	144,673	162,479	175,792	202,526	207,745	233,533	243,204	263,035	277,419	292,871
Minimum	65,254	55,155	70,018	75,634	84,830	85,247	102,571	95,520	118,551	124,233
Range	79,419	107,324	105,774	126,892	122,915	148,286	140,633	167,515	158,868	168,638

TABLE LXXX

SUMMARY OF NET FARM INCOME FOR A 45 YEAR OLD FARM OPERATOR WITH A STARTING FARM SIZE OF 1,600 ACRES AND A BEGINNING TENURE STATUS OF A FULL TENANT

	Year									
Replication	1	2	3	4	5	6	7	8	9	10
1	9,311	4,323	2,272	23,041	30,609	16,487	22,818	25,530	29,655	19,819
2	- 5,216	20,435	8,259	15,581	27,539	37,989	- 1,274	31,759	20,944	- 6,751
3	- 3,274	22,710	8,268	33,854	21,200	18,191	4,892	30,064	9,451	24,277
4	5,454	2,179	28,042	17,749	21,310	14,262	3,000	36,702	32,371	31,932
5	6,914	10,971	23,590	14,210	30,646	36,035	13,269	39,688	23,190	19,468
6	2,841	8,933	6,276	11,927	11,087	29,706	39,985	7,576	9,701	25,842
7	- 5,513	25,225	2,283	8,666	19,106	11,742	7,840	7,595	34,875	48,019
8	12,032	7,688	6,272	10,383	1,503	16,878	1,515	25,959	23,187	- 3,311
9	381	5,878	- 2,001	21,208	38,389	4,410	26,247	7,110	4,578	15,188
10	6,695	22,400	26,373	25,827	25,861	38,766	11,807	5,011	29,481	23,073
11	- 7,374	29,140	14,810	20,056	7,473	24,689	6,010	14,406	29,502	27,315
12	12,217	14,449	9,895	35,744	20,357	17,304	23,814	- 4,736	17,432	5,355
13	3,006	18,496	24,117	9,482	13,277	1,671	25,045	1,770	3,852	2,548
14	12,752	22,133	12,976	9,344	22,263	39,190	28,079	- 723	43,810	29,642
15	- 1,098	6,275	24,171	11,357	33,255	24,425	13,499	25,674	15,971	12,281
Mean	3,275	14,749	13,040	17,895	21,592	22,116	15,103	16,892	21,867	18,313
Std. Dev.	6,793	8,680	9,888	8,706	10,092	12,196	11,958	14,549	11,718	14,526
Maximum	12,752	29,140	28,042	35,744	38,389	39,190	39,985	39,688	43,810	48,019
Minimum	- 7,374	2,179	- 2,001	8,666	1,503	1,671	- 1,274	- 4,736	3,852	- 6,751
Range	20,126	26,961	30,043	27,078	36,886	37,519	41,259	44,424	39,958	54,770

TABLE LXXX (Continued)

Replication	Year									
	11	12	13	14	15	16	17	18	19	20
1	41,134	46,083	21,355	38,707	35,727	19,682	2,730	18,053	28,106	54,842
2	23,140	40,817	26,305	6,428	12,335	51,301	45,229	18,989	37,879	35,909
3	27,028	17,137	4,913	24,145	63,697	35,240	33,531	17,774	3,047	48,517
4	24,612	24,187	35,636	46,089	27,469	45,406	23,208	42,801	17,712	21,576
5	30,252	43,725	24,800	4,634	51,820	24,615	40,037	46,509	56,253	32,442
6	20,679	9,334	- 1,754	52,653	17,906	34,639	31,020	50,447	- 6,687	49,551
7	35,482	15,670	12,509	17,604	47,750	19,472	22,874	55,547	30,647	41,230
8	21,518	- 6,714	26,464	12,229	24,754	5,956	32,669	- 3,614	41,718	10,336
9	4,062	44,011	21,194	13,264	25,020	31,704	29,376	21,350	50,390	3,499
10	39,457	35,708	28,336	54,328	14,798	54,087	27,595	42,583	37,592	39,363
11	- 2,698	27,784	11,756	48,899	26,582	25,058	4,524	63,058	42,100	46,740
12	43,692	19,947	27,851	50,250	11,329	44,848	53,186	59,375	12,256	40,828
13	25,999	24,605	35,655	16,202	28,625	31,346	34,442	37,572	27,687	30,194
14	20,041	10,474	38,604	6,814	15,968	17,905	21,744	27,918	35,457	35,930
15	14,546	- 5,538	21,211	29,761	19,574	11,224	24,015	55,179	21,885	43,483
Mean	24,596	23,149	22,322	28,134	28,224	30,166	28,412	36,903	29,069	35,629
Std. Dev.	12,908	17,004	11,402	18,643	15,418	14,374	13,289	19,310	17,194	14,382
Maximum	43,692	46,083	38,604	54,328	63,697	54,087	53,186	63,058	56,253	54,842
Minimum	- 2,698	- 6,714	- 1,754	4,634	11,329	5,956	2,730	- 3,614	- 6,687	3,499
Range	46,390	52,797	40,358	49,694	52,368	48,131	50,456	66,672	62,940	51,343

TABLE LXXXI

SUMMARY OF CONSUMPTION FOR A 45 YEAR OLD FARM OPERATOR WITH A STARTING FARM SIZE OF 1,600 ACRES AND A BEGINNING TENURE STATUS OF A FULL TENANT

	Year									
Replication	1	2	3	4	5	6	7	8	9	10
1	6,000	8,680	8,568	11,847	11,397	9,008	8,183	8,278	11,295	11,975
2	6,000	8,745	9,045	10,091	10,695	12,815	7,270	12,533	8,365	7,255
3	6,000	8,802	8,427	11,508	8,187	8,503	7,737	12,169	9,240	11,523
4	6,000	8,317	10,920	10,608	10,221	8,338	7,566	12,552	12,193	11,725
5	6,000	9,223	10,151	8,700	10,120	12,904	9,351	12,623	8,836	7,586
6	6,000	8,590	8,632	9,252	8,155	9,466	10,863	7,571	7,477	10,098
7	6,000	11,453	8,509	8,690	9,943	9,531	7,493	7,546	11,499	13,426
8	6,000	8,527	8,369	8,579	7,869	10,083	7,476	11,405	12,195	7,417
9	6,000	8,555	8,407	10,719	11,117	7,884	9,866	7,846	7,875	7,556
10	6,000	10,105	9,573	9,204	10,794	13,163	9,250	7,481	10,274	8,671
11	6,000	12,462	8,807	11,666	8,180	8,180	7,565	7,411	12,575	12,143
12	6,000	10,363	8,477	12,522	10,368	11,752	11,815	7,224	9,358	8,680
13	6,000	10,051	11,493	8,591	8,067	7,949	9,646	7,105	7,350	8,247
14	6,000	8,864	10,455	8,679	8,188	13,250	10,146	7,482	12,989	10,934
15	6,000	8,745	10,569	8,806	11,166	8,460	7,540	9,841	8,128	7,748
Mean	6,000	9,432	9,360	9,964	9,631	10,086	8,784	9,271	9,977	9,666
Std. Dev.	0	1,218	1,074	1,401	1,347	2,083	1,451	2,292	1,993	2,111
Maximum	6,000	12,462	11,493	12,522	11,397	13,250	11,815	12,623	12,989	13,426
Minimum	6,000	8,317	8,369	8,579	7,869	7,884	7,270	7,105	7,350	7,255
Range	0	4,145	3,124	3,943	3,528	5,366	4,545	5,518	5,639	6,171

TABLE LXXXI (Continued)

	Year									
Replication	11	12	13	14	15	16	17	18	19	20
1	12,056	13,011	9,606	11,945	14,269	9,345	7,614	10,678	9,821	15,312
2	10,530	13,638	10,773	7,543	8,446	15,223	13,951	8,692	14,078	14,509
3	10,185	11,637	7,587	9,493	16,313	11,380	14,001	9,984	7,618	16,622
4	11,387	9,039	10,703	13,673	12,640	11,994	12,782	13,573	10,692	9,817
5	12,330	13,104	11,332	7,604	15,012	12,345	13,526	13,216	15,628	12,220
6	10,561	7,442	7,468	15,681	9,589	12,288	10,281	15,003	7,590	13,842
7	11,172	10,592	8,373	7,714	14,822	8,662	12,292	14,353	15,200	11,320
8	11,455	7,448	9,522	7,812	12,305	7,808	11,206	7,498	12,597	7,568
9	8,202	13,397	12,183	8,135	10,003	13,967	10,817	8,356	14,743	7,606
10	13,873	10,514	9,023	14,784	8,719	15,557	12,600	13,147	14,836	15,293
11	7,489	12,835	8,104	12,437	9,701	12,701	8,722	18,147	13,929	13,282
12	13,841	10,710	11,920	15,425	8,101	13,495	13,647	16,686	10,932	15,097
13	11,615	11,782	13,309	9,222	12,398	12,728	13,546	12,707	9,829	11,431
14	11,136	8,524	12,745	8,071	8,825	9,179	10,387	10,088	12,140	11,317
15	8,029	7,281	9,744	11,466	7,671	7,789	11,716	13,166	9,222	14,336
Mean	10,924	10,730	10,159	10,734	11,254	11,631	11,806	12,353	11,924	12,638
Std. Dev.	1,889	2,300	1,877	3,067	2,874	2,538	1,953	3,088	2,751	2,783
Maximum	13,873	13,638	13,309	15,681	16,313	15,557	14,001	18,147	15,628	16,622
Minimum	7,489	7,281	7,468	7,543	7,671	7,789	7,614	7,498	7,590	7,568
Range	6,384	6,357	5,841	8,138	8,642	7,768	6,387	10,649	8,038	9,054

TABLE LXXXII

SUMMARY OF NET WORTH FOR A 45 YEAR OLD FARM OPERATOR WITH A STARTING FARM SIZE OF 1,600 ACRES AND A BEGINNING TENURE STATUS OF A FULL TENANT

	Year									
Replication	1	2	3	4	5	6	7	8	9	10
1	35,421	33,681	30,388	39,885	53,992	61,491	74,083	87,463	100,796	107,548
2	22,751	33,570	34,768	40,692	53,291	71,293	66,158	79,768	90,911	80,404
3	24,693	37,072	38,896	55,417	67,088	76,305	75,484	88,238	89,920	100,206
4	32,217	29,097	42,021	49,062	58,784	65,269	63,367	80,516	94,907	109,448
5	33,444	36,664	48,281	54,546	69,957	86,463	90,807	110,036	122,260	133,128
6	30,096	32,305	32,243	36,189	40,453	55,840	77,043	78,889	82,545	94,329
7	22,454	33,853	30,627	32,508	41,006	44,398	46,546	48,433	65,321	89,744
8	37,626	38,855	39,053	42,459	39,129	45,864	42,579	53,141	62,004	54,776
9	28,075	27,772	20,796	30,185	50,175	49,179	61,487	62,661	61,706	69,531
10	33,258	44,093	58,124	72,110	84,368	102,582	105,902	105,688	119,916	132,215
11	20,592	32,766	39,356	46,956	48,235	62,338	62,873	70,268	82,212	93,012
12	37,746	42,542	45,638	62,506	71,433	76,767	86,407	77,947	85,636	84,517
13	30,233	38,353	48,495	51,620	57,635	54,369	66,744	64,291	63,258	60,289
14	38,180	50,048	53,616	56,085	68,488	86,920	100,018	95,138	116,969	130,654
15	26,762	26,586	38,144	42,105	58,349	71,970	78,508	90,428	98,258	103,714
Mean	30,237	35,817	40,030	47,488	57,492	67,403	73,200	79,527	89,108	96,234
Std. Dev.	5,864	6,349	9,758	11,489	12,972	16,645	17,732	17,700	20,537	24,470
Maximum	38,180	50,048	58,124	72,110	84,368	102,582	105,902	110,036	122,260	133,128
Minimum	20,592	26,586	20,796	30,185	39,129	44,398	42,579	48,433	61,706	54,776
Range	17,588	23,462	37,328	41,925	45,239	58,184	63,323	61,603	60,554	78,352

TABLE LXXXII (Continued)

Replication	Year									
	11	12	13	14	15	16	17	18	19	20
1	128,136	151,581	161,802	181,002	195,483	204,759	202,696	209,486	222,928	250,379
2	90,646	109,673	121,116	122,029	126,580	151,570	173,461	182,907	199,129	213,751
3	112,758	117,934	117,548	129,763	162,338	179,607	193,024	200,289	198,119	219,706
4	119,754	132,454	150,686	173,473	183,638	207,612	215,904	236,424	242,682	252,770
5	145,606	167,260	178,012	177,353	202,679	212,278	230,855	254,402	282,302	296,717
6	102,821	106,203	100,447	125,952	133,465	149,393	164,723	189,318	178,291	203,402
7	107,397	112,523	117,483	126,884	149,468	159,263	167,788	196,706	206,598	228,240
8	63,181	52,520	65,329	70,678	80,422	80,675	96,268	88,656	109,123	113,229
9	67,852	89,419	96,938	102,744	114,743	126,880	140,490	151,956	176,520	175,006
10	149,777	168,250	182,905	210,514	216,614	243,277	253,821	274,610	289,868	306,192
11	86,325	96,770	101,444	127,491	139,955	149,534	147,755	178,286	197,696	221,343
12	105,161	113,279	124,688	148,719	152,829	174,902	202,825	232,165	234,166	251,742
13	70,420	80,574	96,213	103,134	114,623	127,741	142,270	159,890	173,272	186,857
14	138,419	141,642	159,968	160,683	167,564	175,737	185,385	198,675	215,090	232,918
15	110,302	100,983	110,955	124,193	134,808	139,396	149,289	179,128	190,050	210,299
Mean	106,570	116,071	125,702	138,974	151,681	165,508	177,770	195,527	207,722	224,170
Std. Dev.	27,340	31,957	33,861	36,266	37,157	40,958	40,434	44,975	44,598	47,228
Maximum	149,777	168,250	182,905	210,514	216,614	243,277	253,821	274,610	289,868	306,192
Minimum	63,181	52,520	65,329	70,678	80,422	80,675	96,268	88,656	109,123	113,229
Range	86,596	115,730	117,576	139,836	136,192	162,602	157,553	185,954	180,745	192,963

TABLE LXXXIII

SUMMARY OF NET FARM INCOME FOR A 25 YEAR OLD FARM OPERATOR WITH A STARTING FARM SIZE OF 2,560 ACRES AND A BEGINNING TENURE STATUS OF A FULL OWNER

	Year									
Replication	1	2	3	4	5	6	7	8	9	10
1	12,810	3,942	457	19,657	27,019	11,181	15,187	19,867	19,977	13,868
2	- 2,150	16,579	5,902	12,283	24,923	23,966	7,959	23,048	18,081	2,905
3	886	19,224	10,217	25,826	19,233	11,671	989	20,470	3,963	15,030
4	6,912	3,482	18,184	10,308	16,357	9,178	1,729	24,948	26,058	21,990
5	9,610	5,113	16,960	12,241	26,460	26,276	12,950	29,028	21,494	19,124
6	5,035	3,853	2,164	6,525	8,751	21,524	27,935	7,050	6,214	14,609
7	- 630	22,273	3,146	5,572	15,486	8,831	8,591	3,119	24,162	27,486
8	14,960	6,080	6,729	9,692	4,848	13,068	1,192	17,579	19,287	- 516
9	4,649	6,779	31	18,722	34,736	493	20,131	6,550	- 982	8,450
10	10,325	15,428	21,426	21,602	22,690	30,695	6,318	4,861	18,591	15,024
11	- 5,764	22,574	11,477	14,867	4,250	20,325	2,328	13,362	17,480	18,079
12	14,684	9,190	6,616	29,337	15,973	13,641	18,251	6,341	14,332	3,891
13	5,957	13,327	20,394	8,003	11,472	2,749	19,256	956	3,073	2,961
14	14,591	20,397	11,538	5,899	19,162	28,571	20,157	- 616	32,905	25,224
15	1,020	5,434	21,302	8,526	29,796	20,605	12,124	16,300	11,284	4,955
Mean	6,193	11,578	10,436	13,937	18,744	16,185	11,673	12,858	15,728	12,872
Std. Dev.	6,603	7,253	7,659	7,486	9,024	9,193	8,388	9,453	9,425	8,736
Maximum	14,960	22,574	21,426	29,337	34,736	30,695	27,935	29,028	32,905	27,486
Minimum	- 5,764	3,482	31	5,572	4,250	493	989	- 616	- 982	- 516
Range	20,724	19,092	21,395	23,765	30,486	30,202	26,946	29,644	33,887	28,002

TABLE LXXXIII (Continued)

Replication	Year									
	11	12	13	14	15	16	17	18	19	20
1	29,224	35,597	19,969	28,381	24,858	12,581	2,079	13,076	14,820	35,026
2	17,977	27,999	12,949	4,392	8,950	31,633	31,321	15,023	19,685	19,377
3	18,348	4,918	620	15,676	42,300	19,886	20,773	11,784	3,254	30,694
4	17,614	17,252	28,564	34,957	19,757	26,331	15,210	29,867	7,765	14,753
5	17,286	31,045	19,188	8,161	38,647	16,466	28,380	29,441	30,446	21,836
6	7,975	4,970	772	28,024	10,373	18,788	20,148	27,799	- 5,242	24,312
7	26,094	12,253	12,514	18,579	30,148	15,504	15,317	31,095	19,652	25,792
8	17,423	- 9,458	15,052	4,915	17,222	5,918	20,252	- 1,658	28,472	7,884
9	- 2,679	27,859	13,670	7,226	16,247	22,296	18,855	10,985	28,675	- 738
10	26,902	25,907	22,103	40,167	8,181	40,318	19,110	30,821	27,327	27,855
11	4,163	17,794	14,306	27,747	19,825	19,017	2,752	35,029	19,202	26,671
12	28,381	12,508	15,904	32,336	9,454	29,261	33,441	34,048	6,705	25,553
13	11,996	12,403	20,404	11,867	16,636	20,768	17,669	22,813	17,764	20,496
14	19,278	10,458	32,603	6,210	14,696	12,988	15,844	21,988	19,490	30,015
15	5,524	- 2,110	10,379	19,507	16,322	12,950	16,126	32,516	17,043	25,842
Mean	16,367	15,293	15,933	19,210	19,574	20,314	18,485	22,975	17,004	22,358
Std. Dev.	9,459	12,764	8,647	12,011	10,383	8,725	8,655	10,813	10,215	9,215
Maximum	29,224	35,597	32,603	40,167	42,300	40,318	33,441	35,029	30,446	35,026
Minimum	- 2,679	- 9,458	620	4,392	8,181	5,918	2,079	- 1,658	- 5,242	- 738
Range	31,903	45,055	31,983	35,775	34,119	34,400	31,362	36,687	35,688	35,764

TABLE LXXXIV

SUMMARY OF CONSUMPTION FOR A 25 YEAR OLD FARM OPERATOR WITH A STARTING FARM SIZE OF 2,560 ACRES AND A BEGINNING TENURE STATUS OF A FULL OWNER

	Year									
Replication	1	2	3	4	5	6	7	8	9	10
1	6,000	7,263	7,598	9,172	10,002	8,762	8,746	8,762	9,317	9,548
2	6,000	7,388	8,175	8,267	9,488	9,903	8,159	10,073	8,776	8,126
3	6,000	7,501	7,656	9,016	8,764	8,809	8,773	10,640	8,913	9,317
4	6,000	6,915	8,588	8,280	9,108	8,654	8,594	10,114	9,871	9,493
5	6,000	7,572	8,272	7,794	9,087	9,940	8,867	10,186	8,838	8,623
6	6,000	7,074	7,847	8,201	8,675	8,819	9,123	8,606	8,390	8,835
7	6,000	8,300	7,706	7,911	8,907	8,812	8,431	8,537	9,488	9,750
8	6,000	7,116	7,597	7,801	8,319	8,866	8,395	9,376	9,842	8,472
9	6,000	7,135	7,525	8,385	9,845	8,319	9,111	8,788	8,788	8,451
10	6,000	7,643	8,247	8,221	9,525	10,931	8,921	8,427	9,379	8,886
11	6,000	9,024	8,125	9,032	8,729	8,586	8,596	8,327	10,085	8,998
12	6,000	7,649	7,582	9,732	9,198	9,144	9,623	8,110	8,871	8,782
13	6,000	7,639	8,950	7,808	8,555	8,199	8,884	8,006	8,236	8,572
14	6,000	7,542	8,282	7,898	8,770	10,993	9,325	8,538	11,274	10,551
15	6,000	7,355	8,313	8,112	9,837	8,694	8,516	8,902	8,733	8,213
Mean	6,000	7,541	8,031	8,375	9,121	9,162	8,804	9,026	9,253	8,974
Std. Dev.	0	528	426	591	516	874	384	840	780	653
Maximum	6,000	9,024	8,950	9,732	10,002	10,993	9,623	10,640	11,274	10,551
Minimum	6,000	6,915	7,525	7,794	8,319	8,199	8,159	8,006	8,236	8,126
Range	0	2,109	1,425	1,938	1,683	2,794	1,464	2,634	3,038	2,425

TABLE LXXXIV (Continued)

Replication	Year									
	11	12	13	14	15	16	17	18	19	20
1	9,725	10,298	8,899	9,584	10,854	8,883	8,580	8,949	8,920	8,468
2	8,922	10,618	8,933	8,478	8,765	11,491	10,716	8,809	10,678	10,911
3	8,914	9,342	8,345	8,873	12,171	9,233	10,688	8,909	8,609	12,124
4	9,248	8,845	8,932	10,579	9,882	9,640	9,928	10,427	8,957	8,920
5	9,813	10,343	9,223	8,581	11,345	9,712	10,442	10,249	11,623	9,613
6	8,866	8,073	8,163	10,081	8,663	8,903	8,763	9,818	8,211	9,276
7	8,904	8,877	8,628	8,534	10,463	8,693	9,050	10,269	10,545	8,946
8	10,118	8,034	8,911	8,774	10,502	8,770	9,839	8,521	10,625	8,622
9	8,706	10,514	9,686	8,448	8,897	10,648	8,926	8,759	11,117	8,578
10	11,538	9,412	8,923	12,006	8,741	12,462	10,508	10,785	11,781	12,051
11	8,198	9,352	8,576	9,235	8,820	9,267	8,682	11,341	9,296	9,030
12	10,771	8,929	9,566	11,572	8,661	10,467	10,600	12,211	8,957	11,255
13	8,910	8,913	9,647	8,746	9,113	9,293	9,730	9,311	8,839	8,932
14	10,617	8,932	11,918	8,895	8,941	8,983	9,846	9,487	10,916	10,363
15	8,700	8,120	8,889	9,224	8,659	8,658	9,337	10,267	8,840	10,858
Mean	9,463	9,240	9,149	9,441	9,632	9,674	9,709	9,874	9,861	9,863
Std. Dev.	939	869	884	1,133	1,156	1,123	776	1,058	1,208	1,282
Maximum	11,538	10,618	11,918	12,006	12,171	12,462	10,716	12,211	11,781	12,124
Minimum	8,198	8,034	8,163	8,448	8,659	8,658	8,580	8,521	8,211	8,468
Range	3,340	2,584	3,755	3,558	3,512	3,804	2,136	3,690	3,570	3,656

TABLE LXXXV

SUMMARY OF NET WORTH FOR A 25 YEAR OLD FARM OPERATOR WITH A STARTING FARM SIZE OF 2,560 ACRES AND A BEGINNING TENURE STATUS OF A FULL OWNER

	Year									
Replication	1	2	3	4	5	6	7	8	9	10
1	284,863	283,982	280,056	289,692	302,797	306,633	313,585	323,943	333,831	338,971
2	272,577	281,560	281,518	286,584	299,717	311,783	313,587	324,864	333,929	331,584
3	275,207	286,028	290,053	304,065	313,985	318,200	313,634	322,586	320,311	326,567
4	280,124	279,217	288,343	291,820	299,297	301,630	297,840	310,366	323,860	334,989
5	282,327	282,102	290,713	296,217	310,800	324,390	329,525	343,894	355,387	365,332
6	270,561	277,796	275,021	275,466	277,414	288,950	303,345	303,948	304,053	310,505
7	273,953	277,109	274,337	274,786	276,734	288,270	302,883	303,486	302,986	308,547
8	286,486	287,522	288,745	292,220	291,250	296,480	292,448	292,762	305,000	319,588
9	278,230	279,843	275,633	285,386	304,206	299,683	309,898	309,908	303,525	305,455
10	282,894	290,823	302,609	314,559	326,200	341,024	340,701	339,673	348,540	355,223
11	269,024	280,587	285,168	291,444	289,577	300,468	297,173	303,181	310,531	319,373
12	286,265	289,310	290,452	305,308	312,389	317,807	326,161	326,654	332,849	330,644
13	279,328	285,682	296,056	298,134	302,423	299,864	309,432	305,592	303,261	300,501
14	286,191	297,828	302,302	302,534	312,393	325,626	335,646	329,863	345,935	358,235
15	275,318	275,584	287,207	289,427	304,696	315,700	320,536	328,175	332,123	331,363
Mean	278,890	283,665	287,214	293,176	301,592	309,101	313,760	317,926	323,741	329,125
Std. Dev.	5,906	5,987	8,919	10,798	13,518	14,748	14,383	14,893	18,228	19,505
Maximum	286,486	297,828	302,609	314,559	326,200	341,024	340,701	343,894	355,387	365,332
Minimum	269,024	275,584	274,337	274,786	276,734	288,270	292,448	292,762	302,986	300,501
Range	17,462	22,244	28,272	39,773	49,466	52,754	48,253	51,132	52,401	64,831

TABLE LXXXV (Continued)

Replication	Year									
	11	12	13	14	15	16	17	18	19	20
1	353,942	372,928	383,228	397,733	409,200	414,049	410,586	415,741	422,225	442,630
2	340,421	353,618	358,685	357,206	359,251	374,191	389,681	396,439	404,551	412,437
3	335,706	333,813	329,367	336,586	358,526	368,427	377,568	381,776	379,240	392,870
4	343,282	351,690	366,980	385,223	394,438	408,370	414,159	428,891	429,504	435,987
5	372,829	388,493	397,918	399,494	419,379	426,341	439,987	454,590	468,292	479,182
6	311,617	310,994	306,844	320,595	323,885	333,384	343,959	357,811	347,858	360,817
7	333,380	337,964	343,014	352,716	367,613	374,874	381,628	397,402	405,872	420,211
8	311,120	297,128	303,808	302,484	309,212	308,727	318,308	311,547	325,077	326,375
9	297,533	310,732	315,632	316,564	316,165	334,377	343,837	347,531	360,715	354,776
10	366,709	380,548	392,335	412,904	414,093	434,315	442,394	457,454	468,753	480,412
11	317,963	326,295	332,762	347,159	357,425	366,671	363,644	381,179	390,544	405,344
12	343,962	348,706	355,364	370,727	373,305	387,561	404,693	420,650	420,378	432,225
13	304,837	309,511	319,404	323,809	331,504	342,036	349,892	361,749	370,572	381,252
14	366,337	369,450	384,661	384,277	390,444	395,492	401,823	412,956	420,927	435,829
15	330,603	323,812	326,880	336,572	344,472	349,815	356,879	373,678	381,925	394,268
Mean	335,349	341,045	347,792	356,270	364,594	374,575	382,603	393,293	399,762	410,308
Std. Dev.	23,448	28,393	31,773	34,116	35,629	36,816	36,647	40,091	40,753	43,593
Maximum	372,829	388,493	397,918	412,904	419,379	434,315	442,394	457,454	468,753	480,412
Minimum	297,533	297,128	303,808	302,484	309,212	308,727	318,308	311,547	325,077	326,375
Range	75,296	91,365	94,110	110,420	110,167	125,588	124,086	145,907	143,676	154,037

TABLE LXXXVI

SUMMARY OF NET FARM INCOME FOR A 45 YEAR OLD FARM OPERATOR WITH A STARTING FARM SIZE OF 2,560 ACRES AND A BEGINNING TENURE STATUS OF A FULL OWNER

	Year									
Replication	1	2	3	4	5	6	7	8	9	10
1	12,810	3,942	376	19,528	26,848	11,035	15,069	19,817	19,996	14,589
2	- 2,150	16,579	5,833	12,170	24,765	23,835	7,858	23,021	18,121	4,799
3	886	19,945	10,906	26,523	19,934	13,333	3,914	21,682	10,270	20,188
4	6,912	4,204	18,871	10,999	17,055	9,957	2,594	25,952	27,109	22,899
5	9,610	5,835	17,650	12,936	27,160	26,974	13,647	29,841	22,424	20,518
6	5,035	4,574	2,853	7,217	9,450	23,658	29,911	9,127	8,532	17,188
7	- 630	22,994	3,836	6,266	16,185	9,607	9,457	4,118	25,307	28,760
8	14,960	6,801	7,419	10,388	5,551	13,858	2,068	18,597	20,431	2,668
9	4,649	7,500	719	19,413	35,433	3,165	21,067	9,057	2,400	11,087
10	10,325	16,150	22,115	22,296	23,388	30,481	12,213	12,887	23,840	20,259
11	- 5,764	23,296	12,174	15,569	4,959	21,122	3,208	14,381	18,636	19,369
12	14,684	9,912	7,308	30,035	16,676	14,424	19,116	7,328	15,465	6,837
13	5,957	14,048	21,082	8,696	12,171	4,804	21,256	3,058	5,423	5,573
14	14,591	21,118	12,228	6,593	19,863	28,484	24,462	7,189	35,941	27,426
15	1,020	6,156	21,990	9,219	30,495	21,379	12,972	17,277	12,393	7,769
Mean	6,193	12,204	11,024	14,523	19,329	17,074	13,254	14,889	17,753	15,329
Std. Dev.	6,603	7,276	7,766	7,460	8,928	8,661	8,609	8,220	8,905	8,421
Maximum	14,960	23,296	22,115	30,035	35,433	30,481	29,911	29,841	35,941	28,760
Minimum	- 5,764	3,942	376	6,266	4,959	3,165	2,068	3,058	2,400	2,668
Range	20,724	19,354	21,739	23,769	30,474	27,316	27,843	26,783	33,541	26,092

TABLE LXXXVI (Continued)

Replication	Year 11	12	13	14	15	16	17	18	19	20
1	28,826	34,711	19,662	25,601	22,145	14,777	6,508	13,697	15,625	30,053
2	18,749	27,942	17,975	10,993	13,816	31,010	30,491	17,177	19,238	19,405
3	24,210	11,416	10,099	20,451	41,171	22,665	22,251	14,356	8,517	27,757
4	19,344	19,269	28,754	31,042	20,581	26,523	16,886	25,891	9,736	15,393
5	18,058	30,176	18,962	8,413	33,083	16,659	26,324	24,961	25,154	18,914
6	10,806	8,090	4,207	31,792	14,454	23,008	24,446	29,963	251	27,114
7	27,511	13,746	14,172	20,138	30,022	16,321	15,574	27,641	18,268	26,484
8	19,279	932	21,665	12,915	22,252	14,540	25,633	8,519	30,149	16,277
9	1,353	29,122	16,568	10,957	18,744	24,058	23,991	16,466	28,525	7,390
10	28,051	26,996	23,608	34,331	10,859	33,860	17,935	24,652	21,574	21,940
11	5,601	19,407	16,082	28,896	21,542	19,708	5,127	33,914	22,409	29,149
12	29,324	18,553	20,413	31,888	13,928	28,398	31,855	29,411	8,759	22,734
13	14,887	15,574	23,866	16,353	21,211	24,649	21,446	23,953	19,441	20,913
14	21,608	14,017	31,138	10,072	16,303	14,941	16,874	20,062	17,714	24,803
15	8,753	2,155	13,699	21,129	18,336	14,746	17,261	28,781	16,713	22,894
Mean	18,424	18,140	18,725	20,998	21,230	21,724	20,173	22,630	17,472	22,081
Std. Dev.	8,733	10,206	6,870	9,118	8,099	6,387	7,648	7,239	8,050	6,046
Maximum	29,324	34,711	31,138	34,331	41,171	33,860	31,855	33,914	30,149	30,053
Minimum	1,353	932	4,207	8,413	10,859	14,540	5,127	8,519	251	7,390
Range	27,971	33,779	26,931	25,918	30,312	19,320	26,728	25,395	29,898	22,662

TABLE LXXXVII

SUMMARY OF CONSUMPTION FOR A 45 YEAR OLD FARM OPERATOR WITH A STARTING FARM SIZE OF 2,560 ACRES AND A BEGINNING TENURE STATUS OF A FULL OWNER

	Year									
Replication	1	2	3	4	5	6	7	8	9	10
1	6,000	8,519	8,225	9,799	9,372	8,134	7,489	7,506	8,062	7,670
2	6,000	8,644	8,803	8,895	8,859	9,275	6,903	8,817	7,521	6,707
3	6,000	8,757	8,284	9,644	8,136	8,067	7,391	8,592	7,604	7,664
4	6,000	8,171	9,216	8,908	8,480	8,026	7,339	8,860	8,617	7,667
5	6,000	8,827	8,900	8,422	8,459	9,312	7,611	8,931	7,584	7,218
6	6,000	8,329	8,474	8,829	8,048	8,192	7,868	7,353	7,137	7,583
7	6,000	9,557	8,337	8,542	9,282	8,184	7,175	7,282	8,233	8,498
8	6,000	8,372	8,225	8,428	7,691	8,239	7,140	8,120	8,592	7,062
9	6,000	8,391	8,153	9,013	9,217	7,529	7,642	7,415	7,415	7,040
10	6,000	8,899	8,875	8,848	8,897	9,478	7,610	7,012	7,674	7,438
11	6,000	10,280	8,753	9,660	8,102	7,960	7,341	7,073	8,831	7,745
12	6,000	8,905	8,209	10,360	8,570	8,516	8,368	6,855	7,617	7,404
13	6,000	8,894	9,578	8,436	7,927	7,572	7,630	6,753	6,984	7,321
14	6,000	8,798	8,910	8,526	8,142	9,528	7,662	7,129	9,165	7,874
15	6,000	8,611	8,941	8,739	9,209	8,066	7,260	7,648	7,480	6,797
Mean	6,000	8,797	8,659	9,003	8,559	8,405	7,495	7,690	7,901	7,446
Std. Dev.	0	528	426	591	550	667	347	770	649	455
Maximum	6,000	10,280	9,578	10,360	9,372	9,528	8,368	8,931	9,165	8,498
Minimum	6,000	8,171	8,153	8,422	7,691	7,529	6,903	6,753	6,984	6,707
Range	0	2,109	1,425	1,938	1,681	1,999	1,465	2,178	2,181	1,791

TABLE LXXXVII (Continued)

	Year									
Replication	11	12	13	14	15	16	17	18	19	20
1	7,768	8,283	7,558	7,661	8,115	7,411	7,029	7,455	7,366	8,015
2	7,621	8,571	7,648	6,923	7,252	8,651	8,014	7,185	7,700	7,709
3	7,606	7,675	6,940	7,427	9,205	7,634	7,998	7,373	6,945	8,536
4	7,664	7,485	7,649	7,898	7,683	7,672	7,695	7,690	7,466	7,359
5	7,847	8,324	7,683	7,029	8,527	7,685	7,789	7,687	8,146	7,632
6	7,616	6,823	6,916	8,835	7,418	7,659	7,522	7,863	6,805	7,687
7	7,656	7,625	7,377	7,125	8,432	7,304	7,671	7,696	7,870	7,552
8	8,117	6,622	7,633	7,279	9,285	7,276	7,669	6,850	7,681	6,966
9	7,321	8,484	7,736	6,896	7,482	7,960	7,574	7,126	7,772	6,909
10	8,684	7,649	7,509	8,439	7,090	8,782	7,708	7,690	7,751	7,946
11	6,946	8,101	7,326	7,668	7,457	7,679	7,291	9,229	7,690	7,679
12	8,706	7,638	7,683	8,708	7,128	7,813	7,919	8,597	7,490	7,880
13	7,660	7,665	8,399	7,368	7,662	7,676	7,781	7,637	7,367	7,548
14	7,683	7,544	8,997	7,330	7,464	7,517	7,645	7,521	7,691	7,648
15	7,311	6,707	7,558	7,613	7,128	7,127	7,636	7,667	7,238	7,700
Mean	7,747	7,680	7,641	7,613	7,822	7,723	7,663	7,684	7,532	7,651
Std. Dev.	466	613	510	616	728	458	254	579	350	395
Maximum	8,706	8,571	8,997	8,835	9,285	8,782	8,014	9,229	8,146	8,536
Minimum	6,946	6,622	6,916	6,896	7,090	7,127	7,029	6,850	6,805	6,909
Range	1,760	1,949	2,081	1,939	2,195	1,655	985	2,379	1,341	1,627

TABLE LXXXVIII

SUMMARY OF NET WORTH FOR A 45 YEAR OLD FARM OPERATOR WITH A STARTING FARM SIZE OF 2,560 ACRES AND A BEGINNING TENURE STATUS OF A FULL OWNER

	Year									
Replication	1	2	3	4	5	6	7	8	9	10
1	284,863	282,967	278,440	287,557	300,981	305,165	312,961	324,182	334,986	342,218
2	272,577	280,697	280,103	284,606	298,088	310,526	313,252	325,366	335,366	335,719
3	275,207	285,630	289,730	303,804	314,692	320,753	319,703	331,099	335,042	346,394
4	280,124	278,791	287,974	291,528	300,007	303,425	301,377	314,479	328,657	341,826
5	282,327	281,711	290,381	295,948	310,510	324,085	330,670	346,502	359,478	371,437
6	278,561	277,385	274,651	275,192	278,200	291,584	308,529	311,797	314,816	324,087
7	273,953	285,704	283,903	283,917	290,902	293,908	297,629	296,855	311,092	326,578
8	286,486	287,129	288,427	291,983	292,110	298,422	296,157	305,868	316,482	314,772
9	278,230	279,431	275,262	285,076	304,836	303,174	315,136	318,282	315,998	321,191
10	282,894	290,415	302,259	314,270	326,743	342,677	348,211	354,835	368,637	380,270
11	269,024	280,284	284,932	291,278	290,510	302,443	300,896	308,608	317,639	328,332
12	286,265	288,942	290,161	305,080	313,168	319,605	329,475	331,799	339,738	341,094
13	279,328	285,269	295,701	297,857	303,169	302,798	314,919	313,837	314,447	314,827
14	286,191	297,431	301,965	302,276	313,104	327,550	341,716	343,647	363,635	378,785
15	275,318	275,170	286,851	289,149	305,362	317,294	323,740	333,016	338,831	341,588
Mean	279,423	283,797	287,383	293,301	302,825	310,894	316,958	324,011	332,990	340,608
Std. Dev.	5,443	5,751	8,397	10,055	12,083	14,086	15,591	16,291	18,850	21,336
Maximum	286,486	297,431	302,259	314,270	326,743	342,677	348,211	354,835	368,637	380,270
Minimum	269,024	275,170	274,651	275,192	278,200	291,584	296,157	296,855	311,092	314,772
Range	17,462	22,261	27,608	39,078	48,543	51,093	52,054	57,980	57,545	65,498

TABLE LXXXVIII (Continued)

Replication	Year									
	11	12	13	14	15	16	17	18	19	20
1	358,481	378,466	389,513	403,561	415,791	423,432	424,927	431,709	440,026	456,926
2	346,049	360,874	370,632	375,863	382,943	399,896	417,111	426,771	437,405	448,162
3	360,846	365,348	369,847	381,546	405,260	418,283	430,712	438,104	441,301	456,026
4	352,580	363,453	379,783	397,512	409,056	423,757	432,677	446,905	450,572	458,757
5	381,062	397,741	408,179	411,203	429,772	438,521	452,961	467,481	481,689	492,137
6	328,468	331,427	331,092	348,423	355,799	369,060	383,477	400,464	397,113	412,225
7	342,006	348,657	355,898	367,751	384,211	393,143	401,115	416,597	426,364	441,157
8	325,021	322,347	334,688	341,069	352,211	359,797	373,861	377,156	394,459	403,695
9	318,154	333,915	342,542	347,769	358,234	371,916	385,933	395,088	411,131	413,453
10	395,059	410,124	423,912	443,469	448,420	467,293	476,960	491,242	503,395	515,635
11	329,111	339,477	348,198	364,611	377,034	387,996	388,068	406,534	419,392	435,976
12	356,777	366,936	378,445	395,973	403,267	419,176	437,470	453,325	456,183	469,013
13	322,308	330,285	343,381	352,276	364,329	378,623	390,740	404,665	415,791	427,727
14	391,032	397,982	414,681	418,767	427,526	435,191	444,151	455,548	465,059	479,498
15	344,619	342,843	349,524	361,563	372,126	380,027	389,303	405,635	414,874	428,007
Mean	350,105	359,325	369,354	380,757	392,399	404,407	415,298	427,815	436,984	449,226
Std. Dev.	24,399	27,314	29,543	30,095	29,989	30,687	30,465	31,047	30,712	31,204
Maximum	395,059	410,124	423,912	443,469	448,420	467,293	476,960	491,242	503,395	515,635
Minimum	318,154	322,347	331,092	341,069	352,211	359,797	373,861	377,156	394,459	403,695
Range	76,905	87,777	92,820	102,400	96,209	107,496	103,099	114,086	108,936	111,940

TABLE LXXXIX

SUMMARY OF NET FARM INCOME FOR A 25 YEAR OLD FARM OPERATOR WITH A STARTING FARM SIZE OF 2,560 ACRES AND A BEGINNING TENURE STATUS OF A PART OWNER

	Year									
Replication	1	2	3	4	5	6	7	8	9	10
1	8,414	- 1,013	- 4,762	14,102	21,198	5,178	8,846	13,186	12,905	7,010
2	- 6,546	11,558	639	6,734	19,072	17,848	1,556	16,280	10,930	- 2,899
3	- 3,511	14,235	4,994	20,320	13,483	5,639	- 5,382	13,671	- 3,232	7,330
4	2,516	- 1,480	12,954	4,829	10,575	3,099	- 4,696	18,102	18,835	14,175
5	5,213	150	11,732	6,755	20,676	20,237	6,640	22,366	14,545	11,772
6	638	- 1,106	- 3,059	988	2,910	16,703	22,589	1,465	291	8,328
7	- 5,027	17,263	- 2,087	36	9,645	2,682	2,092	- 3,751	16,801	19,712
8	10,564	1,134	1,519	4,199	- 952	6,933	- 5,283	10,672	11,957	- 6,381
9	252	1,821	- 5,194	13,155	28,896	- 5,625	13,598	- 307	- 8,295	566
10	5,928	10,467	16,216	16,151	16,983	24,717	142	- 1,666	11,617	7,634
11	-10,160	17,548	6,228	9,333	- 1,571	14,161	- 4,142	6,476	10,150	10,299
12	10,288	4,244	1,402	23,841	10,305	6,999	8,593	- 7,990	2,063	- 8,847
13	1,560	8,367	15,175	2,537	5,705	- 2,066	13,928	- 4,713	- 2,994	- 3,508
14	10,195	15,453	6,362	443	13,407	22,534	13,925	- 7,158	25,855	17,846
15	- 3,376	447	16,048	3,033	23,996	14,615	5,841	9,664	4,238	- 997
Mean	1,797	6,606	5,211	8,430	12,955	10,244	5,216	5,753	8,378	5,469
Std. Dev.	6,603	7,237	7,658	7,483	9,021	9,159	8,486	9,866	9,418	8,765
Maximum	10,564	17,548	16,216	23,841	28,896	24,717	22,589	22,366	25,855	19,712
Minimum	-10,160	- 1,480	- 5,194	36	- 1,571	- 5,625	- 5,382	- 7,990	- 8,295	- 8,847
Range	20,724	19,028	21,410	23,805	30,467	30,342	27,971	30,356	34,150	28,559

TABLE LXXXIX (Continued)

Replication	Year 11	12	13	14	15	16	17	18	19	20
1	20,694	26,142	11,870	18,766	15,110	7,195	- 1,980	6,487	7,887	25,628
2	10,438	19,060	8,610	387	3,267	22,119	21,325	8,943	11,345	8,467
3	10,163	- 3,764	- 8,674	5,663	31,650	8,629	8,834	- 1,702	-10,533	14,223
4	10,053	9,344	19,072	23,197	11,954	19,000	8,442	20,749	1,202	7,812
5	9,500	22,783	11,725	468	30,427	7,818	19,731	20,020	20,613	11,892
6	1,323	- 2,090	- 6,743	19,961	1,971	9,863	10,706	17,164	-12,942	12,933
7	17,974	3,688	3,389	8,858	19,832	4,692	3,815	16,982	6,471	15,859
8	9,476	- 9,539	10,300	808	9,207	722	11,009	- 5,808	14,717	1,130
9	-11,080	18,718	4,181	- 2,879	5,370	10,730	6,605	- 3,254	12,661	-15,572
10	19,047	17,699	14,337	32,445	- 466	31,670	10,462	21,278	17,392	18,301
11	- 4,088	8,957	4,924	17,760	9,365	7,929	- 9,014	22,376	- 5,920	13,731
12	16,189	2,722	5,278	21,037	- 2,395	16,717	20,470	21,015	- 6,952	11,540
13	5,094	5,079	12,628	3,663	7,924	11,541	7,923	10,907	5,880	7,914
14	11,490	2,207	24,045	- 1,579	6,248	4,011	6,295	11,848	8,808	18,718
15	- 682	- 7,988	2,708	9,353	6,339	3,015	4,831	16,141	3,931	10,499
Mean	8,373	7,535	7,843	10,527	10,387	11,043	8,630	12,210	5,760	10,872
Std. Dev.	8,935	11,245	8,668	10,890	10,133	8,224	8,060	9,496	9,748	9,269
Maximum	20,694	26,142	24,045	32,445	31,650	31,670	21,325	22,376	20,613	25,628
Minimum	-11,080	- 9,539	- 8,674	- 2,879	- 2,395	722	- 9,014	- 5,808	-12,942	-15,572
Range	31,774	35,681	32,719	35,324	34,045	30,948	30,339	28,184	33,555	41,200

TABLE XC

SUMMARY OF CONSUMPTION FOR A 25 YEAR OLD FARM OPERATOR WITH A STARTING FARM SIZE OF 2,560 ACRES AND A BEGINNING TENURE STATUS OF A PART OWNER

	Year									
Replication	1	2	3	4	5	6	7	8	9	10
1	6,000	7,217	7,550	9,123	9,950	8,711	8,693	8,707	9,260	8,861
2	6,000	7,342	8,128	8,218	9,437	9,851	8,105	10,017	8,718	7,901
3	6,000	7,455	7,609	8,967	8,714	8,757	8,719	10,584	8,855	9,257
4	6,000	6,870	8,541	8,232	9,057	8,601	8,540	10,058	9,813	8,861
5	6,000	7,526	8,225	7,745	9,036	9,888	8,814	10,130	8,781	8,564
6	6,000	7,028	7,799	8,152	8,625	8,767	9,069	8,552	8,333	8,776
7	6,000	8,255	7,662	7,865	8,859	8,760	8,377	8,480	9,428	9,690
8	6,000	7,070	7,550	7,752	8,268	8,814	8,340	9,318	9,786	8,254
9	6,000	7,090	7,478	8,336	9,794	8,267	9,056	8,732	8,730	8,390
10	6,000	7,597	8,200	8,172	9,475	10,879	8,868	8,372	9,322	8,827
11	6,000	8,978	8,078	8,983	8,679	8,534	8,542	8,271	10,026	8,937
12	6,000	7,603	7,534	9,683	9,148	9,812	10,334	8,217	8,857	8,716
13	6,000	7,593	8,903	7,759	8,504	8,147	8,830	7,951	8,179	8,513
14	6,000	7,497	8,235	7,849	8,720	10,941	9,271	8,483	11,216	10,492
15	6,000	7,309	8,265	8,063	9,612	8,642	8,462	8,847	8,676	7,990
Mean	6,000	7,495	7,984	8,327	9,059	9,158	8,801	8,981	9,199	8,802
Std. Dev.	0	528	426	591	500	893	525	828	778	653
Maximum	6,000	8,978	8,903	9,683	9,950	10,941	10,334	10,584	11,216	10,492
Minimum	6,000	6,870	7,478	7,745	8,268	8,147	8,105	7,951	8,179	7,901
Range	0	2,108	1,425	1,938	1,682	2,794	2,229	2,633	3.037	2,591

TABLE XC (Continued)

Replication	Year									
	11	12	13	14	15	16	17	18	19	20
1	8,961	9,474	8,746	8,885	10,047	8,721	8,370	8,834	8,777	10,634
2	8,812	9,760	8,835	8,269	8,580	10,629	9,916	8,635	9,943	10,150
3	8,851	9,237	8,276	8,801	12,097	9,155	10,607	8,759	8,396	11,242
4	8,855	8,673	8,834	9,795	9,158	8,935	9,196	9,708	8,838	8,771
5	9,752	10,280	9,158	8,514	11,276	9,640	10,367	10,173	11,545	9,532
6	8,806	8,010	8,099	10,013	8,594	8,831	8,689	9,026	7,965	8,841
7	8,846	8,812	8,561	8,463	10,390	8,618	8,972	9,496	9,742	8,807
8	9,305	7,807	8,815	8,457	9,007	8,446	8,833	8,011	8,836	8,117
9	8,642	10,447	9,617	8,376	8,822	10,573	8,844	8,568	10,327	8,358
10	11,476	9,349	8,858	11,939	8,671	12,390	10,434	10,708	11,702	11,970
11	8,135	9,286	8,507	9,187	8,747	9,190	8,602	11,257	9,209	8,939
12	10,700	8,855	9,489	11,492	8,579	10,381	10,511	12,119	8,861	11,155
13	8,848	8,850	9,581	8,678	9,043	9,219	9,654	8,849	8,658	8,798
14	10,556	8,869	11,852	8,827	8,871	8,911	9,770	9,408	10,835	10,278
15	8,501	7,893	8,740	8,791	8,303	8,298	8,803	8,830	8,398	8,855
Mean	9,270	9,040	9,065	9,232	9,346	9,462	9,438	9,492	9,469	9,630
Std. Dev.	937	784	889	1,125	1,110	1,099	782	1,129	1,169	1,190
Maximum	11,476	10,447	11,852	11,939	12,097	12,390	10,607	12,119	11,702	11,970
Minimum	8,135	7,807	8,099	8,269	8,303	8,298	8,370	8,011	7,965	8,117
Range	3,341	2,640	3,753	3,670	3,794	4,092	2,237	4,108	3,737	3,853

TABLE XCI

SUMMARY OF NET WORTH FOR A 25 YEAR OLD FARM OPERATOR WITH A STARTING FARM SIZE OF 2,560 ACRES AND A BEGINNING TENURE STATUS OF A PART OWNER

	Year									
Replication	1	2	3	4	5	6	7	8	9	10
1	165,816	160,950	152,138	157,764	167,914	166,834	168,842	174,328	179,033	179,347
2	152,701	157,975	153,670	154,276	163,397	171,203	167,758	174,266	177,932	170,606
3	155,737	162,950	162,720	173,020	178,740	178,025	167,425	171,427	162,839	163,026
4	160,985	156,045	161,381	160,387	163,456	160,785	151,050	158,850	167,408	173,484
5	163,173	158,961	163,651	164,748	175,464	184,985	185,030	195,815	202,269	206,813
6	159,461	154,707	147,329	143,284	140,433	148,528	160,546	156,580	151,859	153,343
7	154,221	162,879	156,567	152,022	154,503	151,329	148,057	139,326	146,792	156,164
8	167,554	164,604	161,602	160,551	154,717	155,016	144,893	147,742	151,169	140,034
9	159,141	156,738	147,566	153,214	167,879	157,487	162,958	157,276	143,751	139,214
10	163,764	167,899	175,990	184,057	191,622	203,289	197,899	191,279	194,937	195,817
11	149,087	157,180	157,515	159,504	152,667	159,059	149,876	150,324	152,061	155,014
12	167,323	166,347	163,263	175,297	178,047	177,419	177,587	164,880	161,117	147,054
13	160,213	162,656	169,259	166,879	166,459	159,682	165,590	156,426	148,730	140,209
14	167,280	175,329	175,620	171,430	177,082	187,186	192,650	180,509	192,504	199,667
15	155,871	152,123	160,062	157,771	170,152	176,802	176,538	179,044	177,216	171,617
Mean	160,155	161,156	160,556	162,280	166,835	169,175	167,780	166,538	167,308	166,094
Std. Dev.	5,760	5,936	8,667	10,479	12,802	15,346	16,016	16,193	19,049	22,022
Maximum	167,554	175,329	175,990	184,057	191,622	203,289	197,899	195,815	202,269	206,813
Minimum	149,087	152,123	147,329	143,284	140,433	148,528	144,893	139,326	143,751	139,214
Range	18,467	23,206	28,661	40,773	51,189	54,761	53,006	56,489	58,518	67,599

TABLE XCI (Continued)

Replication	Year 11	12	13	14	15	16	17	18	19	20
1	190,153	204,107	208,500	218,000	223,591	224,219	217,301	217,214	218,361	230,887
2	173,801	182,589	184,253	179,689	177,189	187,282	197,566	199,735	202,548	202,798
3	165,966	156,464	143,015	142,279	156,624	158,006	158,111	151,070	135,641	139,375
4	176,311	178,762	188,485	200,155	204,217	213,783	214,960	225,063	220,614	221,702
5	208,334	219,292	223,202	218,467	232,753	232,978	241,688	250,754	258,662	262,300
6	149,010	142,346	131,004	140,184	136,594	139,284	142,791	150,948	133,541	138,687
7	165,076	162,661	160,266	162,530	171,231	169,866	167,410	174,952	173,940	181,322
8	141,923	128,077	131,152	126,738	128,740	124,264	127,881	117,563	124,101	120,295
9	122,992	130,892	128,092	120,309	119,301	120,965	120,970	112,648	116,118	95,687
10	202,879	211,139	217,349	232,425	226,669	240,736	242,357	251,812	257,225	263,271
11	146,290	147,800	146,704	155,175	157,586	158,351	144,235	153,899	152,971	158,667
12	152,806	149,581	147,823	156,305	148,781	155,274	164,355	172,194	159,880	161,643
13	138,918	137,612	141,802	139,529	140,437	144,133	144,428	147,960	147,549	148,693
14	201,989	198,337	208,515	201,523	201,202	198,979	197,799	201,526	201,387	209,456
15	165,808	153,428	150,293	152,635	152,934	150,493	149,021	156,604	154,803	158,007
Mean	166,817	166,872	167,364	169,730	171,857	174,574	175,392	178,929	177,156	179,519
Std. Dev.	25,639	30,118	34,128	36,092	37,325	39,313	40,166	43,811	46,529	50,503
Maximum	208,334	219,292	223,202	232,425	232,753	240,736	242,357	251,812	258,662	263,271
Minimum	122,992	128,077	128,092	120,309	119,301	120,965	120,970	112,648	116,118	95,687
Range	85,342	91,215	95,110	112,116	113,452	119,771	121,387	139,164	142,544	167,584

TABLE XCII

SUMMARY OF NET FARM INCOME FOR A 45 YEAR OLD FARM OPERATOR WITH A STARTING FARM SIZE OF 2,560 ACRES AND A BEGINNING TENURE STATUS OF A PART OWNER

	Year									
Replication	1	2	3	4	5	6	7	8	9	10
1	8,414	- 1,000	- 4,846	13,960	21,007	5,014	8,712	13,121	12,912	7,093
2	- 6,546	12,279	1,329	7,428	19,772	18,626	2,416	17,279	12,062	- 3,394
3	- 3,511	14,957	5,683	21,014	14,182	6,415	- 4,514	14,709	- 2,061	8,690
4	2,516	- 749	13,640	5,520	11,272	3,877	- 3,826	19,142	20,007	15,684
5	5,213	161	11,647	6,637	20,511	20,096	6,529	22,328	14,573	11,872
6	638	- 1,098	- 3,150	842	2,711	16,534	22,444	1,381	285	8,406
7	- 5,027	17,263	- 2,160	- 92	9,462	2,527	1,969	- 3,799	16,850	19,837
8	10,564	1,147	1,449	4,082	- 1,116	6,807	5,378	10,670	12,032	- 6,223
9	252	1,829	- 5,269	13,024	28,720	- 5,776	13,486	- 355	- 8,255	709
10	5,928	10,477	16,152	16,048	16,838	24,601	50	- 1,677	11,706	6,883
11	-10,160	17,548	6,161	9,220	- 1,729	14,041	- 4,229	6,482	10,237	10,467
12	10,288	4,256	1,335	23,727	10,153	6,874	8,500	- 8,012	2,140	- 8,681
13	1,560	8,376	15,108	2,430	5,549	- 2,193	13,842	- 4,729	- 2,912	- 3,319
14	10,195	15,462	6,301	337	13,252	22,404	13,817	- 7,197	25,913	17,903
15	- 3,376	447	15,964	2,903	23,817	14,463	5,714	9,608	4,256	- 8,971
Mean	1,797	6,757	5,290	8,472	12,960	10,287	6,019	5,930	8,650	5,130
Std. Dev.	6,603	7,272	7,688	7,543	9,055	9,140	7,744	10,109	9,443	9,551
Maximum	10,564	17,548	16,152	23,727	28,720	24,601	22,444	22,328	25,913	19,837
Minimum	-10,160	- 1,098	- 5,269	- 92	- 1,729	- 5,776	- 4,514	- 8,012	- 8,255	- 8,971
Range	20,724	18,646	21,421	23,819	30,449	30,377	26,958	30,340	34,168	28,808

TABLE XCII (Continued)

Replication	Year 11	12	13	14	15	16	17	18	19	20
1	20,861	26,383	12,119	18,519	15,063	7,695	- 574	6,615	8,543	22,972
2	11,329	21,031	5,747	- 3,195	933	23,174	2,528	7,346	11,474	10,760
3	11,692	- 2,060	- 6,738	7,853	34,066	11,254	11,708	2,257	- 6,813	19,982
4	11,022	10,337	21,304	27,447	12,587	19,249	8,128	2,115	- 546	5,470
5	9,681	23,051	12,071	468	30,624	7,818	19,731	20,683	21,386	12,780
6	1,485	- 1,835	- 6,368	20,466	2,573	10,586	11,552	18,142	-11,835	14,303
7	18,174	3,972	3,773	9,759	19,928	6,414	5,656	17,673	8,276	16,832
8	9,647	- 9,172	10,797	1,414	10,011	1,580	12,081	- 4,589	16,058	2,699
9	-10,843	19,076	4,627	- 2,323	6,068	11,554	7,560	- 922	16,073	-13,819
10	19,309	18,049	14,775	32,445	- 466	31,670	10,462	22,019	18,227	19,207
11	- 3,834	9,333	5,399	17,859	10,487	9,321	- 5,899	22,556	10,981	18,518
12	16,469	3,089	5,752	21,622	- 1,713	17,552	21,421	22,088	- 5,751	12,938
13	5,399	5,485	13,143	4,284	8,666	12,409	8,922	12,051	7,175	9,375
14	11,622	2,423	24,357	- 1,179	6,779	4,658	7,065	12,749	9,840	19,895
15	- 478	- 7,676	3,145	9,901	6,999	3,799	5,746	17,197	5,124	11,850
Mean	8,769	8,099	8,260	11,023	10,840	11,916	8,406	11,865	7,214	12,251
Std. Dev.	8,978	11,280	8,663	11,415	10,508	8,027	6,936	9,148	9,685	9,158
Maximum	20,861	26,383	24,357	32,445	34,066	31,670	21,421	22,556	21,386	22,972
Minimum	-10,843	- 9,172	- 6,738	- 3,195	- 1,713	1,580	- 5,899	- 4,589	-11,835	-13,819
Range	31,704	35,555	31,095	35,640	35,779	30,090	27,320	27,145	33,221	36,791

TABLE XCIII

SUMMARY OF CONSUMPTION FOR A 45 YEAR OLD FARM OPERATOR WITH A STARTING FARM SIZE OF 2,560 ACRES AND A BEGINNING TENURE STATUS OF A PART OWNER

	Year									
Replication	1	2	3	4	5	6	7	8	9	10
1	6,000	8,473	8,178	9,750	9,322	8,082	7,435	7,450	8,004	7,610
2	6,000	8,598	8,755	8,846	8,809	9,223	6,850	8,762	7,465	6,814
3	6,000	8,711	8,237	9,595	8,086	8,129	7,464	9,329	7,602	8,004
4	6,000	8,125	9,169	8,859	8,429	7,974	7,285	8,804	8,559	8,180
5	6,000	8,782	8,852	8,373	8,408	9,259	7,557	8,875	7,526	7,309
6	6,000	8,284	8,427	8,779	7,996	8,138	7,813	7,296	7,078	7,521
7	6,000	9,511	8,289	8,493	8,230	8,131	7,121	7,225	8,173	8,435
8	6,000	8,326	8,177	8,379	7,640	8,185	7,084	8,062	8,531	7,000
9	6,000	8,345	8,105	8,963	9,165	7,638	7,800	7,476	7,474	7,135
10	6,000	8,853	8,828	8,799	8,847	10,251	7,612	7,117	8,067	7,572
11	6,000	10,234	8,705	9,611	8,050	7,905	7,286	7,015	8,773	7,683
12	6,000	8,859	8,162	10,310	8,520	9,184	9,078	6,961	7,602	7,461
13	6,000	8,849	9,533	8,387	7,876	7,519	7,574	6,695	6,924	7,258
14	6,000	8,752	8,863	8,477	8,091	10,312	8,015	7,228	9,961	9,237
15	6,000	8,565	8,893	8,690	9,158	8,014	7,206	7,591	7,421	6,735
Mean	6,000	8,751	8,612	8,954	8,442	8,530	7,545	7,726	7,944	7,597
Std. Dev.	0	528	427	591	516	893	525	828	778	658
Maximum	6,000	10,234	9,533	10,310	9,322	10,312	9,078	9,329	9,961	9,237
Minimum	6,000	8,125	8,105	8,373	7,640	7,519	6,850	6,695	6,924	6,735
Range	0	2,109	1,428	1,937	1,682	2,793	2,228	2,634	3,037	2,502

TABLE XCIII (Continued)

Replication	Year									
	11	12	13	14	15	16	17	18	19	20
1	7,706	8,220	7,492	7,593	8,046	7,340	6,956	7,380	7,288	7,935
2	7,608	9,302	7,616	7,159	7,444	10,167	9,391	7,483	9,350	9,581
3	7,599	8,026	7,027	7,553	10,849	7,909	9,362	7,580	7,279	10,790
4	7,934	7,529	7,614	9,260	8,554	8,318	8,605	9,102	7,630	7,591
5	8,497	9,026	7,904	7,261	10,023	8,387	9,115	8,921	10,293	8,282
6	7,551	6,756	6,845	8,760	7,341	7,579	7,438	7,775	6,714	7,593
7	7,591	7,558	7,307	7,052	8,356	7,226	7,590	7,612	7,784	7,463
8	8,051	6,553	7,561	7,204	7,755	7,194	7,582	6,761	7,587	6,869
9	7,387	9,193	8,363	7,123	7,570	9,321	7,593	7,423	9,777	7,236
10	10,222	8,096	7,605	10,685	7,419	11,138	9,182	9,457	10,451	10,719
11	6,881	8,032	7,254	7,592	7,378	7,598	7,207	9,142	7,600	7,586
12	9,446	7,601	8,236	10,239	7,327	9,129	9,260	10,868	7,612	9,904
13	7,594	7,596	8,328	7,425	7,791	7,968	8,403	7,599	7,409	7,549
14	9,301	7,614	10,598	7,576	7,618	7,658	8,518	8,157	9,585	9,028
15	7,247	6,639	7,487	7,538	7,050	7,046	7,552	7,579	7,148	7,606
Mean	8,041	7,849	7,816	8,001	8,035	8,265	8,250	8,189	8,234	8,382
Std. Dev.	929	857	888	1,171	1,065	1,190	871	1,084	1,264	1,289
Maximum	10,222	9,302	10,598	10,685	10,849	11,138	9,391	10,868	10,451	10,790
Minimum	6,881	6,553	6,845	7,052	7,050	7,046	6,956	6,761	6,714	6,869
Range	3,341	2,749	3,753	3,633	3,799	4,092	2,435	4,107	3,737	3,921

TABLE XCIV

SUMMARY OF NET WORTH FOR A 45 YEAR OLD FARM OPERATOR WITH A STARTING FARM SIZE OF 2,560 ACRES AND A BEGINNING TENURE STATUS OF A PART OWNER

	Year									
Replication	1	2	3	4	5	6	7	8	9	10
1	165,977	159,892	150,368	155,382	165,864	165,163	168,036	174,412	180,065	181,433
2	152,701	157,589	153,326	154,010	164,100	172,939	171,234	179,397	184,950	178,242
3	155,787	162,540	162,383	172,755	179,418	179,861	171,383	177,052	170,824	173,126
4	161,103	155,605	160,996	160,077	164,164	162,641	155,030	164,485	174,801	182,351
5	163,309	158,024	162,185	162,687	173,695	183,589	184,547	196,158	203,521	209,084
6	159,564	153,575	145,498	140,805	138,318	146,724	159,486	156,498	152,831	155,359
7	154,221	161,992	154,983	149,745	152,579	149,804	147,476	139,952	148,365	158,671
8	167,713	163,727	160,142	158,501	153,139	153,825	144,862	148,683	153,136	143,414
9	159,242	155,799	145,925	151,022	166,001	156,088	162,356	157,777	145,548	142,190
10	163,897	167,104	174,698	182,238	190,177	202,142	197,760	192,384	197,054	199,085
11	149,087	156,342	156,105	157,531	151,173	157,966	149,952	156,413	154,159	158,189
12	167,481	165,502	161,837	173,401	176,491	176,250	177,318	165,845	163,191	150,548
13	160,323	168,812	167,914	164,928	164,869	158,598	165,377	157,452	151,091	144,014
14	167,402	174,570	174,295	169,483	175,454	185,840	192,157	181,232	193,205	201,318
15	155,871	151,064	158,442	155,533	168,074	175,045	175,661	179,095	178,294	173,992
Mean	160,245	160,809	159,273	160,540	165,568	168,432	168,176	168,456	170,069	170,068
Std. Dev.	5,818	6,360	8,777	10,669	12,996	15,490	15,747	16,024	19,107	21,953
Maximum	167,713	174,570	174,698	182,238	190,177	202,142	197,760	196,158	203,521	209,084
Minimum	149,087	151,064	145,498	140,805	138,318	146,724	144,862	139,952	145,548	142,190
Range	18,626	23,506	29,200	41,433	51,859	55,418	52,898	56,206	57,973	66,894

TABLE XCIV (Continued)

	Year									
Replication	11	12	13	14	15	16	17	18	19	20
1	193,171	207,224	212,797	222,975	230,211	232,361	228,140	229,349	232,227	245,184
2	183,087	193,361	193,611	186,758	183,279	194,161	205,329	207,061	210,259	212,659
3	178,253	171,603	161,338	163,431	180,387	184,873	188,249	185,702	175,110	183,176
4	186,612	190,705	202,878	196,657	221,468	231,522	232,754	243,326	238,188	238,251
5	211,692	223,620	228,749	225,083	240,385	241,614	251,159	261,543	270,852	276,120
6	152,201	147,036	137,323	147,261	145,193	149,427	154,580	164,343	152,294	156,425
7	168,644	167,474	166,394	170,495	180,952	182,145	182,327	191,884	194,040	203,148
8	146,505	134,280	138,709	135,839	139,450	136,727	142,179	134,329	142,770	141,278
9	127,460	136,474	135,039	129,040	129,614	132,907	134,710	129,716	135,979	118,425
10	207,252	216,621	224,067	240,020	235,448	250,388	252,944	263,734	270,639	278,229
11	150,964	153,736	154,055	163,778	168,129	171,315	161,709	173,141	177,685	187,868
12	157,387	155,497	155,131	164,833	159,213	167,158	177,777	187,209	173,347	181,121
13	143,992	144,042	149,558	148,791	151,286	156,626	158,725	164,144	165,799	169,095
14	204,687	202,242	220,116	208,154	209,292	208,599	209,064	214,434	216,138	225,898
15	169,528	158,712	156,968	160,703	162,551	161,753	162,050	171,332	171,522	176,757
Mean	172,096	173,508	175,782	177,588	182,457	186,772	189,446	194,750	195,123	199,576
Std. Dev.	25,626	29,852	34,096	34,157	36,681	38,406	38,682	41,593	43,103	46,706
Maximum	211,692	223,620	228,749	240,020	240,385	250,388	252,944	263,734	270,852	278,229
Minimum	127,460	134,280	135,039	129,040	129,614	132,907	134,710	129,716	135,979	118,425
Range	84,232	89,340	93,710	110,980	110,771	117,481	118,234	134,018	134,873	159,804

TABLE XCV

SUMMARY OF NET FARM INCOME FOR A 25 YEAR OLD FARM OPERATOR WITH A STARTING FARM SIZE OF 2,560 ACRES AND A BEGINNING TENURE STATUS OF A FULL TENANT[1]

	Year									
Replication	1	2	3	4	5	6	7	8	9	10
1	5,638	- 5,620	- 9,465	9,069	15,892	- 391	2,952	6,948	6,255	- 82
2	9,322	8,347	- 2,721	3,187	15,350	13,967	- 2,498	11,989	6,381	- 9,521
3	- 6,286	11,024	1,645	16,811	9,833	1,813	- 9,401	9,390	- 7,782	2,421
4	- 260	- 6,086	8,248	- 133	5,336	- 2,441	-10,581	11,718	12,056	7,059
5	2,438	- 4,456	7,047	1,810	15,454	14,757	887	16,281	8,102	5,254
6	- 2,137	- 5,725	- 7,776	- 4,057	- 2,461	10,922	16,497	- 4,855	(- 6,586)	(908)
7	- 7,802	14,052	- 5,431	- 3,511	5,891	- 1,261	- 2,067	(- 8,150)	(12,055)	(14,682)
8	7,788	- 3,469	- 3,149	- 759	- 6,189	1,335	(-11,204)	(4,250)	(5,103)	(-13,694)
9	- 2,523	- 2,802	- 9,876	8,145	23,616	- 9,171	7,865	- 4,917	(-12,710)	(- 5,273)
10	3,153	5,861	11,570	11,272	11,855	19,324	- 5,507	- 7,706	5,093	- 996
11	-12,936	14,338	2,891	5,835	- 5,242	10,262	- 8,226	2,124	5,515	5,361
12	7,512	- 360	- 3,238	18,912	5,150	2,230	6,200	- 6,363	709	- 8,950
13	- 1,215	3,758	10,524	- 2,352	520	- 7,545	8,064	-10,904	(- 9,763)	(-10,824)
14	7,419	10,846	1,738	- 4,439	8,206	16,180	11,611	- 6,365	21,330	11,996
15	- 6,152	- 2,764	12,668	- 494	20,297	10,895	828	4,795	- 1,363	- 7,526
Mean	264	2,463	978	3,953	8,234	5,392	1,187	1,703	5,630	502
Std. Dev.	6,675	7,645	7,688	7,483	9,048	8,921	8,188	9,034	7,804	7,317
Maximum	9,322	14,338	12,668	18,912	23,616	19,324	16,497	16,281	21,330	11,996
Minimum	-12,936	- 6,086	- 9,876	- 4,439	- 6,189	- 9,171	-10,581	-10,904	- 7,782	- 9,521
Range	22,258	20,424	22,544	23,351	29,805	28,495	27,078	27,185	29,112	21,517

TABLE XCV (Continued)

Replication	Year 11	12	13	14	15	16	17	18	19	20
1	13,122	18,113	3,390	9,593	5,850	- 1,837	-10,836	(- 4,504)	(- 4,155)	(9,660)
2	4,616	13,801	- 1,973	(-12,223)	(- 9,232)	(10,764)	(9,159)	(- 7,076)	(- 3,993)	(- 5,403)
3	4,934	(- 9,337)	(-14,688)	(- 2,685)	(21,019)	(- 819)	(- 999)	(-11,600)	(-20,715)	(1,689)
4	2,472	1,181	10,360	13,211	2,640	8,354	- 1,814	6,918	(- 9,827)	(- 5,241)
5	3,012	14,491	4,130	- 6,187	17,721	1,528	10,291	(9,545)	(9,245)	(3,011)
6	(- 6,594)	(-10,619)	(-15,956)	(10,005)	(- 8,594)	(- 1,516)	(- 1,449)	(4,185)	(-26,755)	(- 1,915)
7	(12,651)	(- 1,948)	(- 2,636)	(2,823)	(12,461)	(- 1,562)	(- 2,941)	(8,327)	(- 1,717)	(6,086)
8	(1,571)	(-17,972)	(1,186)	(- 8,914)	(- 1,203)	(-10,474)	(- 993)	(-18,619)	(876)	(-13,618)
9	(-16,230)	(10,076)	(- 3,582)	(-10,610)	(- 4,461)	(- 345)	(- 1,726)	(- 9,161)	(1,158)	(-20,623)
10	9,567	7,373	3,627	17,480	-10,885	15,764	- 2,781	4,080	681	744
11	(- 9,350)	(3,279)	(- 1,127)	(10,737)	(2,938)	(1,127)	(-14,706)	(12,951)	(756)	(7,547)
12	12,223	549	2,287	13,588	- 4,307	10,078	12,639	10,906	(-10,383)	(2,854)
13	(- 2,814)	(- 3,388)	(3,561)	(- 5,267)	(- 1,906)	(617)	(- 3,509)	(- 1,633)	(- 7,122)	(- 6,319)
14	6,705	- 601	16,497	- 4,095	1,594	- 36	713	3,704	721	7,128
15	- 7,638	(-16,228)	(- 4,929)	(1,953)	(- 1,782)	(- 6,697)	(- 5,168)	(6,672)	(- 7,401)	(- 883)
Mean	5,446	7,844	5,474	7,265	2,102	5,642	1,369	6,402	701	3,936
Std. Dev.	6,228	7,684	6,063	9,951	9,678	6,850	8,756	3,328	28	4,514
Maximum	13,122	18,113	16,497	17,480	17,721	15,764	12,639	10,906	721	7,128
Minimum	- 7,638	- 601	- 1,973	- 6,187	-10,885	- 1,837	-10,836	3,704	681	744
Range	20,760	18,714	18,470	23,667	28,606	17,601	23,475	7,202	40	6,384

[1]Observations enclosed in parentheses are associated with bankrupt replicates and are not used in computing the values shown for the mean, standard deviation, maximum, minimum, and range.

TABLE XCVI

SUMMARY OF CONSUMPTION FOR A 25 YEAR OLD FARM OPERATOR WITH A STARTING FARM SIZE OF 2,560 ACRES AND A BEGINNING TENURE STATUS OF A FULL TENANT[1]

	Year									
Replication	1	2	3	4	5	6	7	8	9	10
1	6,000	7,172	7,503	9,074	9,900	8,659	8,638	8,651	9,202	8,806
2	6,000	7,297	8,081	8,170	9,388	9,801	8,054	9,964	8,665	8,011
3	6,000	7,410	7,562	8,920	8,665	8,707	8,668	10,531	8,802	9,201
4	6,000	6,824	8,494	8,183	9,007	8,550	8,486	10,002	9,755	8,801
5	6,000	7,481	8,178	7,697	8,986	9,836	8,761	10,075	8,725	8,355
6	6,000	6,983	7,752	8,103	8,574	8,714	9,015	8,496	(8,275)	(8,715)
7	6,000	8,210	7,615	7,818	8,810	8,709	8,325	(8,428)	(9,374)	(9,634)
8	6,000	7,025	7,503	7,703	8,218	8,762	(8,287)	(9,262)	(9,728)	(8,194)
9	6,000	7,044	7,431	8,287	9,744	8,053	8,789	8,558	(8,554)	(8,172)
10	6,000	7,552	8,153	8,124	9,425	10,828	8,815	8,318	9,265	8,688
11	6,000	8,933	8,031	8,936	8,630	8,484	8,491	8,218	9,972	8,882
12	6,000	7,558	7,488	9,635	9,098	9,041	9,517	8,000	8,756	8,538
13	6,000	7,547	8,856	7,711	8,454	8,095	8,776	7,896	(8,121)	(8,453)
14	6,000	7,451	8,189	7,801	8,670	10,052	8,811	8,273	10,305	9,010
15	6,000	7,264	8,219	8,015	9,738	8,706	8,556	8,972	8,730	8,097
Mean	6,000	7,450	7,937	8,278	9,020	9,000	8,693	8,920	9,218	8,639
Std. Dev.	0	528	426	591	516	779	338	901	598	387
Maximum	6,000	8,933	8,856	9,635	9,900	10,828	9,517	10,531	10,305	9,201
Minimum	6,000	6,824	7,431	7,697	8,218	8,053	8,054	7,896	8,665	8,011
Range	0	2,109	1,425	1,938	1,682	2,775	1,463	2,635	1,640	1,190

TABLE XCVI (Continued)

Replication	Year 11	12	13	14	15	16	17	18	19	20
1	8,899	9,410	8,680	8,778	9,228	8,519	8,132	(8,551)	(8,454)	(9,100)
2	8,803	10,495	8,806	(8,204)	(8,510)	(10,555)	(9,839)	(8,427)	(9,188)	(9,375)
3	8,794	(9,218)	(8,216)	(8,655)	(11,163)	(8,782)	(9,810)	(8,584)	(8,177)	(10,373)
4	8,793	8,609	8,767	9,011	8,791	8,775	8,793	8,782	(8,552)	(8,439)
5	8,979	9,451	8,806	8,148	9,640	8,793	8,892	(8,786)	(9,200)	(8,722)
6	(8,743)	(7,944)	(8,029)	(9,940)	(8,518)	(8,752)	(8,606)	(8,939)	(7,874)	(8,745)
7	(8,789)	(8,754)	(8,500)	(8,242)	(9,544)	(8,411)	(8,772)	(8,791)	(8,960)	(8,636)
8	(9,242)	(7,742)	(8,746)	(8,385)	(8,932)	(8,367)	(8,751)	(7,924)	(8,745)	(8,021)
9	(8,447)	(9,603)	(8,850)	(8,003)	(8,582)	(9,052)	(8,658)	(8,202)	(8,839)	(7,968)
10	10,615	8,810	8,729	10,316	8,350	10,688	9,055	8,806	9,525	9,725
11	(8,078)	(9,227)	(8,446)	(8,783)	(8,566)	(8,783)	(8,389)	(10,320)	(8,776)	(8,757)
12	9,834	8,761	8,800	9,820	8,236	8,914	9,015	9,687	(8,576)	(8,959)
13	(8,785)	(8,784)	(9,513)	(8,474)	(8,761)	(8,767)	(8,866)	(8,714)	(8,436)	(8,608)
14	9,057	8,671	10,119	8,448	8,577	8,626	8,749	8,619	8,784	8,735
15	8,580	(7,995)	(8,759)	(8,781)	(8,391)	(8,380)	(8,776)	(8,851)	(8,465)	(9,320)
Mean	9,150	9,172	8,958	9,087	8,804	9,053	8,773	8,974	9,155	9,230
Std. Dev.	653	677	514	829	540	813	336	483	524	700
Maximum	10,615	10,495	10,119	10,316	9,640	10,688	9,055	9,687	9,525	9,725
Minimum	8,580	8,609	8,680	8,148	8,236	8,519	8,132	8,619	8,784	8,735
Range	2,035	1,886	1,439	2,168	1,404	2,169	923	1,068	741	990

[1]Observations enclosed in parentheses are associated with bankrupt replicates and are not used in computing the values shown for the mean, standard deviation, maximum, minimum, and range.

TABLE XCVII

SUMMARY OF NET WORTH FOR A 25 YEAR OLD FARM OPERATOR WITH A STARTING FARM SIZE OF 2,560 ACRES AND A BEGINNING TENURE STATUS OF A FULL TENANT[1]

	Year									
Replication	1	2	3	4	5	6	7	8	9	10
1	47,577	38,284	24,566	26,241	32,555	26,866	24,033	24,504	23,831	18,290
2	33,966	36,688	29,351	27,079	33,521	38,489	31,393	34,668	34,641	20,608
3	37,002	41,792	38,881	46,726	49,560	45,743	31,174	31,822	18,738	14,928
4	42,762	33,351	34,702	29,699	28,460	20,922	5,355	8,365	11,906	12,321
5	44,962	36,525	37,187	34,279	41,207	46,777	42,125	48,575	49,936	49,276
6	41,090	31,882	19,604	10,944	3,363	7,029	14,712	4,861	(- 6,499)	(-11,088)
7	35,486	41,798	32,251	24,422	23,857	17,287	10,330	(- 2,748)	(1,173)	(6,885)
8	49,369	42,375	34,973	29,888	18,981	14,704	(- 1,287)	(- 3,690)	(- 5,853)	(-24,240)
9	40,721	34,344	20,287	22,007	34,051	20,326	21,421	11,446	(- 6,319)	(-16,263)
10	45,548	45,961	50,341	54,751	58,456	66,383	55,561	43,038	41,344	35,049
11	30,352	36,170	33,809	32,949	22,577	25,955	12,737	9,650	7,596	6,500
12	49,135	44,472	36,996	45,649	44,159	40,339	39,305	28,442	23,646	9,658
13	41,965	40,650	43,483	36,869	32,220	20,080	21,357	6,057	(- 8,327)	(-24,103)
14	49,056	53,655	49,945	41,206	42,713	49,105	53,252	42,114	52,012	56,248
15	37,136	30,576	36,001	30,857	40,575	44,243	39,760	38,131	31,441	19,318
Mean	41,742	39,235	34,825	32,904	33,750	32,283	28,751	25,513	29,509	24,220
Std. Dev.	5,981	6,079	9,096	10,994	13,489	16,357	15,724	15,694	15,153	16,987
Maximum	49,369	53,655	50,341	54,751	58,456	66,383	55,561	48,575	52,012	56,248
Minimum	30,352	30,576	19,604	10,944	3,363	7,029	5,355	4,861	7,596	6,500
Range	19,017	23,079	30,737	43,807	55,093	59,354	50,206	43,714	44,416	49,748

TABLE XCVII (Continued)

Replication	Year 11	12	13	14	15	16	17	18	19	20
1	23,532	31,989	29,475	31,990	30,969	24,039	8,571	(- 983)	(- 10,092)	(- 7,843)
2	18,992	23,133	15,785	(- 1,142)	(-15,383)	(-13,677)	(-12,533)	(- 24,536)	(- 34,217)	(- 45,496)
3	13,568	(- 1,487)	(-20,890)	(-28,766)	(-19,969)	(-26,190)	(-33,610)	(- 50,295)	(- 75,687)	(- 81,276)
4	8,948	4,693	7,868	13,070	9,828	11,337	4,154	4,468	(- 10,410)	(- 20,590)
5	46,152	51,894	49,847	39,012	46,999	42,844	45,834	(- 57,209)	(50,142)	(47,274)
6	(-22,925)	(-37,988)	(-58,474)	(-56,773)	(-70,384)	(-77,242)	(-83,888)	(- 86,021)	(-117,150)	(-124,381)
7	(11,884)	(4,612)	(- 3,063)	(- 5,605)	(- 1,515)	(- 8,076)	(-16,314)	(- 14,844)	(- 22,100)	(- 22,351)
8	(-28,809)	(-51,024)	(-55,411)	(-69,210)	(-75,948)	(-91,289)	(-97,645)	(-120,689)	(-125,334)	(-143,473)
9	(-37,439)	(-35,340)	(-44,272)	(-59,384)	(-68,926)	(-74,965)	(-81,928)	(- 95,792)	(-100,296)	(-125,386)
10	35,721	36,392	34,040	41,159	25,425	30,899	22,531	20,459	14,884	8,801
11	(- 7,428)	(-10,579)	(-16,759)	(-13,320)	(-16,092)	(-20,565)	(-40,160)	(- 36,478)	(- 41,255)	(- 40,399)
12	13,260	8,326	4,793	9,492	449	3,237	8,002	10,679	(- 4,780)	(- 8,014)
13	(-32,233)	(-40,905)	(-44,110)	(-54,351)	(-61,590)	(-66,472)	(-75,348)	(- 82,278)	(- 94,335)	(-105,762)
14	56,105	50,204	56,782	47,739	43,854	38,537	33,752	31,544	26,731	27,252
15	6,601	(-14,121)	(-24,309)	(-28,087)	(-34,837)	(-46,415)	(-56,859)	(- 56,808)	(- 69,174)	(- 75,994)
Mean	24,764	29,519	28,370	30,410	26,254	25,149	20,474	16,788	20,808	18,027
Std. Dev.	17,437	18,655	20,151	15,688	18,432	15,476	16,657	11,837	8,377	13,047
Maximum	56,105	51,894	56,782	47,739	46,999	42,844	45,834	31,544	26,731	27,252
Minimum	6,601	4,693	4,793	9,492	449	3,237	4,154	4,468	14,884	8,801
Range	49,504	47,201	51,989	38,247	46,550	39,607	41,680	27,076	11,847	18,451

[1]Observations enclosed in parentheses are associated with bankrupt replicates and are not used in computing the values shown for the mean, standard deviation, maximum, minimum, and range.

TABLE XCVIII

SUMMARY OF NET FARM INCOME FOR A 45 YEAR OLD FARM OPERATOR WITH A STARTING FARM SIZE OF 2,560 ACRES AND A BEGINNING TENURE STATUS OF A FULL TENANT[1]

	Year									
Replication	1	2	3	4	5	6	7	8	9	10
1	5,638	- 5,611	- 9,556	8,921	15,696	- 560	2,821	6,891	6,273	- 611
2	- 9,322	8,347	- 2,798	3,054	15,167	13,808	- 2,627	11,951	6,418	-10,838
3	- 6,286	11,024	1,567	16,686	9,664	237	-10,836	7,929	- 9,272	900
4	- 260	- 6,079	8,155	- 271	5,141	- 2,608	-10,712	11,678	12,091	7,174
5	2,438	- 4,446	6,956	1,674	15,267	14,593	748	16,217	8,109	5,339
6	- 2,137	- 5,725	- 7,876	- 4,216	- 2,683	10,734	16,337	- 4,950	(- 6,589)	(1,005)
7	- 7,802	14,052	- 5,506	- 3,622	5,699	- 1,427	- 2,195	(- 8,187)	(12,115)	(14,353)
8	7,788	- 3,460	- 3,240	- 906	- 6,398	1,159	(-11,349)	(4,194)	(5,124)	(-13,591)
9	- 2,523	- 2,802	- 9,977	7,987	23,407	- 9,362	7,709	- 5,003	(-12,703)	(- 5,164)
10	3,153	5,869	11,500	11,160	11,698	19,196	- 5,609	- 7,715	5,183	- 819
11	-12,936	14,338	2,816	5,713	- 5,412	8,925	-11,618	- 93	3,601	(293)
12	7,512	- 349	- 3,319	18,775	4,970	2,080	6,081	- 6,408	760	-10,485
13	- 1,215	3,759	10,445	- 2,475	338	- 7,697	7,950	-10,948	(9,710)	(-10,666)
14	7,419	10,857	1,671	- 4,552	8,033	16,035	11,497	- 6,412	21,380	12,118
15	- 6,152	- 2,764	12,567	- 639	20,091	10,715	677	4,718	- 1,367	- 8,977
Mean	- 979	2,467	894	3,819	8,045	5,055	730	1,373	5,318	- 689
Std. Dev.	6,603	7,644	7,690	7,483	9,048	8,934	8,640	8,951	8,131	8,158
Maximum	7,788	14,338	12,567	18,775	23,407	19,196	16,337	16,217	21,380	12,118
Minimum	-12,936	- 6,079	- 9,977	- 4,552	- 6,398	- 9,362	-11,618	-10,948	- 9,272	-10,838
Range	20.724	20,417	22,544	23,327	29,805	28,558	27,955	27,165	30,652	22,956

TABLE XCVIII (Continued)

Replication	Year									
	11	12	13	14	15	16	17	18	19	20
1	13,883	19,530	3,290	11,970	7,570	- 5,550	-16,972	(- 7,385)	(- 7,229)	(11,548)
2	3,497	12,678	- 3,101	(-14,039)	(-10,657)	(10,676)	(9,292)	(8,061)	(- 4,668)	(- 6,378)
3	3,386	(-10,917)	(-16,380)	(- 4,348)	(19,314)	(- 2,560)	(- 2,784)	(-13,433)	(-22,605)	(- 264)
4	2,674	1,553	10,676	13,793	3,330	9,171	- 867	- 1,957	- 8,641	(- 3,861)
5	3,184	14,756	4,483	- 5,731	18,314	2,225	11,115	10,500	10,339	4,249
6	(- 6,407)	(-10,316)	(-15,529)	(10,567)	(- 7,920)	(- 687)	(- 463)	(5,338)	(-25,345)	(- 400)
7	(12,163)	(- 4,073)	(- 4,823)	(1,229)	(11,989)	(- 3,547)	(- 4,914)	(7,713)	(- 3,304)	(4,814)
8	(1,783)	(-17,663)	(1,621)	(- 8,368)	(- 512)	(- 9,638)	(10)	(-17,454)	(2,235)	(-12,087)
9	(-16,012)	(10,412)	(- 3,149)	(-10,042)	(- 3,747)	(525)	(- 708)	(- 7,971)	(2,544)	(-19,064)
10	9,854	7,757	4,118	21,078	- 9,413	19,610	4	7,937	4,345	4,526
11	(-18,551)	(- 2,432)	(- 9,663)	(4,203)	(- 5,570)	(- 7,344)	(-26,522)	(5,272)	(- 9,133)	(- 2,540)
12	12,944	- 3,588	- 1,269	11,573	(-10,719)	(6,872)	(9,700)	(8,185)	(16,532)	(- 1,845)
13	(- 2,542)	(- 2,996)	(4,082)	(- 4,632)	(- 1,120)	(1,562)	(2,419)	(- 359)	(- 5,660)	(- 4,640)
14	6,913	- 300	16,911	- 5,152	1,076	- 599	521	3,938	900	8,282
15	- 9,092	(-18,504)	(- 6,024)	(1,603)	(- 2,406)	(- 7,602)	(- 5,773)	(7,377)	(- 7,872)	(- 790)
Mean	5,249	7,484	5,015	7,922	4,175	4,971	- 1,240	5,105	1,736	5,686
Std. Dev.	6,900	8,596	6,868	10,905	10,080	9,762	10,061	5,427	7,941	2,253
Maximum	13,883	19,530	16,911	21,078	18,314	19,610	11,115	10,500	10,339	8,282
Minimum	- 9,092	- 3,588	- 3,101	- 5,731	- 9,413	- 5,550	-16,972	- 1,957	- 8,641	4,249
Range	22,975	23,118	20,012	26,809	27,727	25,160	28,087	12,457	18,980	4,033

[1]Observations enclosed in parentheses are associated with bankrupt replicates and are not used in computing the values shown for the mean, standard deviation, maximum, minimum, and range.

TABLE XCIX

SUMMARY OF CONSUMPTION FOR A 45 YEAR OLD FARM OPERATOR WITH A STARTING FARM SIZE OF 2,560 ACRES AND A BEGINNING TENURE STATUS OF A FULL TENANT[1]

	Year									
Replication	1	2	3	4	5	6	7	8	9	10
1	6,000	8,428	8,131	9,701	9,271	8,030	7,382	7,395	7,947	8,174
2	6,000	8,552	8,709	8,798	8,759	9,172	6,798	8,708	7,409	6,756
3	6,000	8,665	8,190	9,547	8,037	8,079	7,412	9,274	7,545	7,944
4	6,000	8,080	9,121	8,810	8,378	7,921	7,230	8,746	8,500	7,546
5	6,000	8,736	8,805	8,324	8,358	9,208	7,504	8,820	7,469	7,106
6	6,000	8,238	8,379	8,730	7,945	8,085	7,758	7,239	(7,019)	(7,460)
7	6,000	9,465	8,243	8,445	8,181	8,081	7,069	(7,172)	(8,118)	(9,167)
8	6,000	8,281	8,130	8,330	7,589	8,133	(7,030)	(8,006)	(8,473)	(6,939)
9	6,000	8,300	8,058	8,914	9,115	7,424	7,532	7,302	(7,298)	(6,917)
10	6,000	8,808	8,781	8,751	8,797	10,200	7,559	7,062	8,010	7,433
11	6,000	10,188	8,659	9,563	8,002	7,990	7,365	7,121	9,535	(8,326)
12	6,000	8,814	8,115	10,262	8,470	8,412	8,260	6,744	7,501	7,409
13	6,000	8,803	9,483	8,338	7,826	7,467	7,520	6,640	(6,866)	(7,198)
14	6,000	8,707	8,816	8,428	8,041	9,423	7,554	7,018	9,049	7,755
15	6,000	8,519	8,846	8,642	9,109	8,078	7,300	7,716	7,474	6,993
Mean	6,000	8,706	8,564	8,906	8,392	8,380	7,446	7,676	8,044	7,457
Std. Dev.	0	528	426	591	516	773	333	892	749	458
Maximum	6,000	10,188	9,483	10,262	9,271	10,200	8,260	9,274	9,535	8,174
Minimum	6,000	8,080	8,058	8,324	7,589	7,424	6,798	6,640	7,409	6,756
Range	0	2,108	1,425	1,938	1,682	2,776	1,462	2,634	2,126	1,418

TABLE XCIX (Continued)

Replication	Year 11	12	13	14	15	16	17	18	19	20
1	8,347	8,916	7,513	8,194	9,461	7,485	7,177	(7,539)	(7,504)	(10,014)
2	7,547	9,240	7,551	(7,091)	(7,372)	(10,091)	(9,312)	(7,299)	(8,602)	(8,804)
3	7,537	(7,961)	(6,959)	(7,397)	(9,905)	(7,525)	(8,552)	(7,326)	(6,919)	(9,114)
4	7,538	7,355	7,513	7,757	7,539	7,523	7,522	7,532	7,303	(7,190)
5	7,724	8,196	7,553	6,896	8,387	7,541	7,641	7,535	7,990	7,472
6	(7,488)	(6,690)	(6,776)	(8,688)	(7,259)	(7,500)	(7,355)	(7,689)	(6,624)	(7,496)
7	(7,819)	(7,545)	(7,374)	(7,145)	(9,070)	(7,296)	(7,647)	(8,169)	(8,412)	(7,475)
8	(7,987)	(6,488)	(7,494)	(7,133)	(7,680)	(7,115)	(7,500)	(6,674)	(7,496)	(6,773)
9	(7,193)	(8,349)	(7,596)	(6,750)	(7,330)	(7,800)	(7,407)	(6,952)	(7,590)	(6,720)
10	9,361	7,556	7,475	9,844	7,234	10,249	8,455	8,142	8,968	9,199
11	(6,980)	(8,704)	(7,319)	(7,857)	(7,413)	(7,852)	(7,259)	(9,907)	(7,855)	(7,580)
12	9,392	7,547	8,179	9,376	(7,134)	(8,355)	(8,474)	(9,217)	(7,429)	(8,403)
13	(7,531)	(7,530)	(8,259)	(7,222)	(7,509)	(7,517)	(7,615)	(7,464)	(7,187)	(7,360)
14	7,802	7,417	8,865	7,335	7,441	7,479	7,553	7,473	7,619	7,546
15	7,431	(6,888)	(7,535)	(7,833)	(7,264)	(7,257)	(7,929)	(8,229)	(7,330)	(8,743)
Mean	8,075	8,032	7,807	8,234	8,012	8,055	7,670	7,671	7,970	8,072
Std. Dev.	785	771	528	1,160	921	1,227	473	316	722	976
Maximum	9,392	9,240	8,865	9,844	9,461	10,249	8,455	8,142	8,968	9,199
Minimum	7,431	7,355	7,475	6,896	7,234	7,479	7,177	7,473	7,303	7,472
Range	1,961	1,885	1,390	2,948	2,227	2,770	1,278	669	1,665	1,727

[1]Observations enclosed in parentheses are associated with bankrupt replicates and are not used in computing the values shown for the mean, standard deviation, maximum, minimum, and range.

TABLE C

SUMMARY OF NET WORTH FOR A 45 YEAR OLD FARM OPERATOR WITH A STARTING FARM SIZE OF 2,560 ACRES AND A BEGINNING TENURE STATUS OF A FULL TENANT[1]

	Year									
Replication	1	2	3	4	5	6	7	8	9	10
1	47,689	37,150	22,714	23,796	30,448	25,227	23,322	24,734	25,086	19,596
2	33,966	35,727	27,689	24,797	31,538	36,876	30,913	35,130	36,143	22,049
3	37,002	40,819	37,315	44,616	47,815	43,223	28,226	28,657	15,340	11,330
4	42,856	32,197	32,976	27,251	26,363	19,294	4,852	8,803	13,345	14,846
5	45,079	35,396	35,488	31,938	39,159	45,040	41,331	48,666	50,995	51,417
6	41,090	30,626	17,621	8,175	1,011	5,025	13,516	4,827	(- 5,280)	(- 8,743)
7	35,486	40,859	30,611	22,023	21,786	15,686	9,863	(- 1,997)	(2,947)	(8,543)
8	49,486	41,245	33,125	27,272	16,785	12,888	(- 1,992)	(- 3,428)	(- 4,564)	(-21,593)
9	40,721	33,088	18,303	19,395	31,664	18,378	20,348	11,543	(- 4,948)	(-13,538)
10	45,653	45,085	48,938	52,784	56,860	65,107	55,439	44,162	43,556	38,634
11	30,352	35,233	32,283	30,826	20,911	23,548	7,815	3,809	376	(- 4,520)
12	49,269	43,464	35,281	43,410	42,284	38,860	38,735	29,082	25,386	10,993
13	41,970	39,654	41,954	34,595	30,328	18,664	20,808	6,720	(- 6,356)	(-20,719)
14	49,189	52,824	48,530	39,050	40,906	47,676	52,667	42,737	53,535	58,844
15	37,136	29,320	34,194	28,285	38,324	42,346	38,795	38,085	32,649	20,179
Mean	41,796	38,179	33,135	30,548	31,745	30,523	27,616	25,150	29,641	27,543
Std. Dev.	6,033	6,191	9,256	11,185	13,627	16,441	16,152	16,277	17,118	17,742
Maximum	49,486	52,824	48,938	52,784	56,860	65,107	55,439	48,666	53,535	58,844
Minimum	30,352	29,320	17,621	8,175	1,011	5,025	4,852	3,809	376	10,993
Range	19,134	23,504	31,317	44,609	55,849	60,082	50,587	44,857	53,159	47,851

TABLE C (Continued)

Replication	Year									
	11	12	13	14	15	16	17	18	19	20
1	25,635	35,221	33,585	38,343	38,287	28,751	8,102	(- 3,322)	(- 14,555)	(- 11,960)
2	20,269	24,498	17,345	(- 284)	(-15,062)	(-13,243)	(- 11,773)	(- 23,633)	(- 33,403)	(- 45,085)
3	9,719	(- 5,658)	(-25,497)	(-33,741)	(-25,253)	(-31,881)	(- 39,749)	(- 57,008)	(- 83,032)	(- 89,172)
4	12,664	9,759	14,209	20,766	19,093	22,228	17,144	19,282	6,838	(- 713)
5	49,467	56,307	55,543	46,416	55,702	53,149	57,764	61,972	65,587	64,730
6	(-19,137)	(-32,643)	(-51,448)	(-48,339)	(-60,018)	(-64,911)	(- 69,471)	(- 69,640)	(- 98,208)	(-102,857)
7	(13,582)	(5,464)	(- 3,233)	(- 6,182)	(- 2,285)	(- 9,628)	(- 18,688)	(- 17,336)	(- 25,552)	(- 25,938)
8	(-24,940)	(-45,591)	(-48,578)	(-60,579)	(-65,505)	(-78,758)	(- 83,075)	(-103,703)	(-106,202)	(-121,562)
9	(-33,243)	(-29,925)	(-37,169)	(-50,461)	(-58,038)	(-62,227)	(- 67,043)	(- 78,467)	(- 80,807)	(-103,090)
10	40,522	42,580	51,572	51,341	38,194	46,510	41,250	42,824	40,570	38,241
11	(-26,550)	(-34,234)	(-47,416)	(-48,681)	(-58,163)	(-69,859)	(-100,140)	(-102,577)	(-116,065)	(-122,727)
12	15,284	7,649	1,601	4,851	(- 9,502)	(- 9,084)	(- 6,437)	(- 5,775)	(- 26,236)	(- 33,059)
13	(-27,336)	(-34,385)	(-36,165)	(-44,519)	(-49,781)	(-52,840)	(- 59,423)	(- 64,006)	(- 73,353)	(- 81,853)
14	59,867	55,381	63,150	54,164	50,792	46,007	42,074	40,978	37,293	39,709
15	6,907	(-14,985)	(-25,043)	(-28,368)	(-34,587)	(-45,945)	(- 56,147)	(- 55,135)	(- 66,836)	(- 73,040)
Mean	26,704	33,056	33,858	35,980	40,414	39,329	33,267	41,264	37,572	47,560
Std. Dev.	18,906	19,983	23,599	19,399	14,190	13,148	20,215	17,460	24,073	14,888
Maximum	59,867	56,307	63,150	54,164	55,702	53,149	57,764	61,972	65,587	64,730
Minimum	6,907	7,649	1,601	4,851	19,093	22,228	8,102	19,282	6,838	38,241
Range	52,960	48,658	61,549	49,313	36,609	30,921	49,662	42,690	58,749	26,489

[1]Observations enclosed in parentheses are associated with bankrupt replicates and are not used in computing the values shown for the mean, standard deviation, maximum, minimum, and range.

VITA

Roy Edward Hatch

Candidate for the Degree of

Doctor of Philosophy

Thesis: GROWTH POTENTIAL AND SURVIVAL CAPABILITY OF SOUTHERN PLAINS DRYLAND FARMS: A SIMULATION ANALYSIS INCORPORATING MULTIPLE-GOAL DECISION MAKING

Major Field: Agricultural Economics

Biographical:

Personal Data: Born at Lamesa, Texas, August 24, 1939, the son of Edward C. and Vivian Hatch.

Education: Graduated from Lamesa High School, Lamesa, Texas, in May, 1957; received the Bachelor of Science degree from Texas Technological College, Lubbock, Texas, in January, 1961, with a major in Agricultural Economics; received the Master of Science degree from Texas A&M University, College Station, Texas, in January, 1963, with a major in Agricultural Economics; completed requirements for the Doctor of Philosophy degree at Oklahoma State University, Stillwater, Oklahoma, in July, 1973.

Professional Experience: Employed as a Graduate Research Assistant in the Department of Agricultural Economics and Sociology, Texas A&M University, from January, 1961, to January, 1963; employed as an Agricultural Economist by the Economic Research Service of the United States Department of Agriculture from February, 1963, to the present.

Organizations: American Agricultural Economics Association, Western Agricultural Economics Association, Alpha Zeta, Phi Kappa Phi.